

PN ABX 979 CDIE

95-0000

**Water and Sanitation  
Baseline Survey Report**

**Changara and Chifunde,  
Tete Province, Mozambique**

Grant number - 656-0217-6-00-5009-00  
Project number - 656-0217

**American Refugee Committee**

**May 1995**

## Acknowledgments

On behalf of American Refugee Committee Health Education Program staff, I would like to convey sincere thanks and gratitude to everyone who contributed to the completion of these surveys. Without their valuable and essential input and cooperation, this effort would not have been possible.

Special thanks are offered to Jim Borton who did the majority of the work for the Changara survey and to Julie Archer who designed the original Kaphiridzanje survey instrument, worked as part of the Changara survey team, and shared the workload for the Chifunde survey.

ARC also extends its deepest appreciation to the following individuals and organizations:

- to the Provincial Ministry of Health for their support and advice to ARC in our work in Tete Province.
- local authorities--District Directors of Health, District Administrators, *secretários*, and zone *chefes*--for their warm welcome and cooperation in conducting the survey.
- the survey enumerators for their enthusiasm and good work: Acacio Alberto, Carlos Arsoni, Damson Chaima, Tomé Chigombe, Daniel Dausse, Joaquim Imicane, Luca Mitivo, Elias Passageiro, Afonso Salvador, David Sande, and Texious Masoamphambe.
- David Matabanula and Solomon Custodio for their excellent translations and many revisions of the survey instruments.
- Texious Masoamphambe and Ricardo Tendekai for executing the field test of the questionnaire in Matambo.
- Joana and Rassida for getting hundreds of photocopies on time.
- ARC's administration and operations offices for their support.
- And lastly to ARC's Mozambique Director, Charles F. Ellmaker, for his faith in and support of the Health Program Staff.

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## Part 1

### Introduction

#### 1.1 Overview of the project

The American Refugee Committee (ARC) began its activities in Central-Southern Africa in 1988 in the southern region of Malawi where ARC implemented programs to improve the health and living conditions of the Mozambican refugees living there. Major programs carried out by ARC in Malawi included:

- health education
- mobile clinics
- feeding centres
- cholera camps
- training of health staff and school teachers
- latrine slab construction and sanitation education
- water point construction and rehabilitation
- formation and training of water point committees
- environmental rehabilitation
- construction of health centres, schools, staff houses, and latrines

in both refugee-impacted areas and in refugee camps.

After the signing of the peace accord in October 1993 and the ensuing repatriation of Mozambican refugees to their homes, American Refugee Committee began to reduce its activities in Malawi, while commencing activities in Mozambique. ARC wished to continue its support to Mozambicans by providing programs for the returning refugees, displaced persons, and individuals in the war-affected areas. During the initial phase of repatriation until the end of 1996, ARC's goal is to assist the Mozambican government with the reconstruction and rehabilitation of the infrastructure, and to increase knowledge and improve practices among rural populations which lead to good health. UNHCR requested that American Refugee Committee assist in Tete Province, where it was estimated that 120,000 refugees have returned or will return from Malawi, Zambia, and Zimbabwe.

The American Refugee Committee launched its activities in Tete Province with the construction or rehabilitation of health posts, schools, and staff houses and the construction or rehabilitation of water points at designated sites in Moatize, Changara, and Chifunde Districts.

Kaphiridzanje in Moatize District was chosen as the initial site for ARC to implement activities since it served as a transit camp for returning refugees. The need for protected water points and communal latrines was deemed a priority. ARC responded by rehabilitating eleven water points and constructing communal latrines at the market.

While carrying out these activities, it became evident that hygiene education, latrine promotion, and water point sanitation education would also be beneficial to the surrounding communities as they were rapidly being settled by returning refugees and displaced persons.

Because of the increasing population density as a result of the high number of returnees, and the existence of few latrines, ARC proposed a pilot sanitation project in Kaphiridzanje.

ARC conducted a baseline survey there on the water and sanitation knowledge, attitudes, and practices (KAP). The results revealed a latrine coverage of twenty percent, and a slightly higher rate of sanitation knowledge. Based on these results, ARC decided to embark on a community hygiene education and latrine promotion (HELP) campaign. As part of its sanitation project, ARC offers to assist in the production of concrete latrine slabs for those people who want them, and who demonstrate their interest by taking sand and water to the production site and digging their own latrine pit. Once the materials are delivered, ARC staff assist in locating a site for the latrine, making the slab, and transmitting health education messages at the household and community levels. The community has responded with much interest and enthusiasm thus far.

As a result of this successful pilot project in Kaphiridzanje, and in view of its successes in Malawi, ARC decided to expand this HELP project to Changara and Chifunde Districts of Tete Province. However, before undertaking the implementation of this project, a baseline survey on the current knowledge, attitudes and practices vis-à-vis water and sanitation was deemed necessary in these districts.

## 1.2 Objectives of the survey

The American Refugee Committee conducted a baseline survey on the water and sanitation knowledge, attitudes, and practices of a sample population in six villages of Changara District from 25 July to 2 August 1994, and in six villages of Chifunde District from 15 to 21 February 1995. The primary purpose of the surveys was to gather and make available information on the target populations to be used in project design and implementation--i. e., to help define strategies and appropriate health education messages for the targeted communities, to focus the training design of ARC's hygiene education and latrine promotion teams, and to aid ARC's Water Project in the implementation of its educational activities in the two districts.

An increase in knowledge and change in practices in respect to drinking water, hygiene, and sanitation are anticipated by the end of the project as a result of project interventions. Thus the second purpose of the survey was to provide a baseline from which to monitor progress and to evaluate the outcomes of the sanitation component of the Health Program.

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## Part 2

### Methodology

#### 2.1 Survey Instrument

The survey instrument for both districts consisted of a household questionnaire divided into ten sections. Seven of the sections required that questions on various topics be asked of a respondent: demographic information, water use and availability, latrine use and availability, hand-washing, food hygiene, rubbish disposal, and diarrheal disease. All responses were unsolicited, so most questions included a space for "other" responses. Observation of the drinking water container and demonstration of hand-washing were also required. The last two sections of the questionnaire required that the enumerator record observations on the cleanliness of the yard and latrine, if one was present.

In the Changara questionnaire, there were 33 questions to pose orally and 20 items to observe if the respondent had a latrine. If the respondent had no latrine, however, only 31 questions were posed orally and 6 items observed. In the Chifunde questionnaire, there were 31 questions to ask orally and 24 items to observe for respondents with a latrine. If the respondent had no latrine, there were 30 questions to pose orally and 7 items to observe.

Both survey instruments required fifteen to thirty minutes to administer, depending on slip patterns, speed of comprehension and clarity of responses.

The Changara questionnaire was based on the survey instrument used for the Kaphiri dzanje survey conducted by ARC in March 1994, and on the Primary Health Care Management Advancement Program (PHC MAP) guide, "Assessing Community Health Needs and Coverage". The Chifunde instrument was a revision of the Changara questionnaire with slight modifications in wording, format and content to improve comprehension and facilitate the completion of the questionnaire form.

The questionnaires were first translated into the appropriate local language of the district--Nhungwe for Changara and Chichewa for Chifunde--and then back-translated into Portuguese to ensure precision in the wording of the questions. They were then field-tested in Matambo by enumerators with past survey experience. The questionnaires were subsequently revised to eliminate problems in translation and language comprehension. English versions of both questionnaires are attached in Appendices A and B.

Prior to the Changara water and sanitation survey, a water point observation survey was conducted in the six Changara sites. A summary of the results will be presented later in this report.

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## 2.2 Sample Selection

Three hundred thirty adults from six villages of Changara District and 334 adults from six villages of Chifunde District were interviewed for these two surveys.

To select the sample, a list of populations from the six project villages in each district, segregated by *bairro*<sup>1</sup> when figures were available, was compiled. Most population figures for Changara District were obtained from food distribution lists compiled by World Vision International. Chifunde District population figures were obtained during an assessment conducted by ARC in November 1994. Thirty clusters of eleven interviews each were selected.

In Changara District, a systematic sampling of the population of 36 *bairros* in the 6 project villages was done, with the start being randomly selected. Nineteen *bairros* were assigned to 30 clusters to obtain a 90 percent confidence interval. Each *bairro* had from one to three clusters assigned to it and each cluster consisted of 11 interviews. In Chifunde District, *bairro* population figures were not available for all villages, so from one to nine clusters were assigned to each village, for a total of 30 clusters of 11 interviews each. This resulted in a confidence level of 95 percent and at least 8 percent precision. The probability of selection in both cases was proportional to the size of the population, therefore larger *bairros* and villages generally contained two or more clusters.

## 2.3 Selection and Training of Enumerators

At the time of the Changara survey, the ten enumerators were all recently hired ARC Health Program employees. Seven of the ten had had prior experience as survey enumerators. All were fluent and literate in Nhungwe, the predominant local language of Changara District, as well as in either Portuguese or English. These same ten men served as enumerators for the Chifunde survey because of their past survey experience, and because they were fluent in Chichewa, the predominant language in Chifunde District.

ARC Health Program staff facilitated a 3-day training program for the ten enumerators prior to the Changara survey, and a two-day refresher training prior to the Chifunde survey. The program included sessions on the purpose of the survey, the role and responsibilities of the interviewer, interviewing techniques, importance of randomness, and bias.

The bulk of the training was devoted to reading and familiarizing the enumerators with the questionnaire, both in Portuguese or English, and in the local language. First, the purpose of each question was explained. Then instructions on how to fill out the questionnaire were reviewed to familiarize the interviewers with skip patterns and open-ended questions.

Role plays were presented both by training staff and the interviewers. After the procedure to select households was covered, a simulation exercise was performed during which the interviewers worked in teams selecting households and conducting interviews in a village.

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<sup>1</sup> A *bairro* is the equivalent of a neighborhood in a village (analogous to the French *quartier*); sometimes it is distant from the village and would more aptly be defined as a hamlet.

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## 2.4 Survey Procedure

During the actual survey, interviewers worked in pairs and alternated conducting interviews. Accompanied by a supervisor, the enumerators presented themselves to the *secretário*<sup>2</sup> or other local authority. Although local authorities had been informed prior to the survey, the enumerators explained again the purpose and procedure of the survey, and requested to be led to the center of the *bairro*.

Once the center was located, the enumerators spun a bottle or pen to indicate the direction in which to proceed. From the center, they walked to the edge of the *bairro*, counting all of the houses on the right. Each pair had in their possession a packet of cards numbered 1 to 50. At the edge of the *bairro*, they extracted from the pack the same number of cards as houses counted, shuffled these, and selected one card to determine the starting point of the interviews for that cluster. For example, if, from the center to the edge of the *bairro*, they counted 14 houses, cards numbered 1 through 14 were extracted from the pack. After shuffling the 14 cards, if card number 5 was selected, the enumerators walked back along the same path counting the houses until they arrived at the fifth house.

After the initial house was selected, they ascertained if an adult member of the household was present and, if so, his or her willingness to be interviewed. If more than one adult member was present, each was asked to pick a card from the deck, and the one who chose the highest number was interviewed.

In the event that no adults were present, the team moved on to the next closest house to follow the same procedure. The pair of enumerators later returned to households where the inhabitants had been absent to inquire about their return. If they had returned, an interview was conducted there.

This procedure was repeated until an entire cluster of 11 interviews was conducted, or until there were no more houses available. In the latter case, the team returned to the center of the *bairro* to spin their bottle or pen and continue in a different direction.

Because the Chifunde survey took place during the cultivation season, many people were working in their fields. To obtain a sufficient number of interviews, survey teams sometimes had to interview respondents in the fields. In this case, interviewees were not selected by the next closest house, but rather by the nearest field.

To assure standardization in the use of language, interviewers read the questionnaire in the language in which it was printed. Both local language and Portuguese versions of the questionnaire were available to all interview teams.

The interviews were conducted by pairs of enumerators taking the interviewing and supporting roles in turn. While one team member conducted the interview, the other observed and provided assistance to make sure that questions were not skipped and that the questionnaire form was properly completed. When logistical constraints necessitated (i.e., great distances between households or fields), interviews were conducted by only one team member.

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<sup>2</sup> A *secretário* is the political head of a *bairro*.

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## 2.5 Data Analysis

Upon completion of the interviews in the field, the questionnaires were brought to Tete where health program management staff entered data using Epi Info 5.0. This program was also used for data analysis. Frequency tables were used to discern tendencies, and cross tabulations were used to compare sub-groups. (No statistically significant conclusions can be reached between sub-groups because they were too small.) The text and tables of this report are in Word Perfect 5.1.

One interview from the Changara survey was rejected because the interviewer extemporaneously translated a Nhungwe questionnaire into Portuguese.

## 2.6 Data Quality

An attempt was made to enhance memory reliability by asking questions about *recent* behavior. For example, questions concerning drinking water were asked only about water pulled on the day of the interview.<sup>3</sup> Questions about diarrhea were posed only where a person had had diarrhea within the three days prior to the interview. However, the question concerning the respondent's arrival in the village precluded the option of asking only about recent behavior.

The observation sections of the first survey instrument were generally too subjective. For example, at the end of the first day of the survey it was found that the enumerators had varying definitions of rubbish, cleanliness of a latrine, and the presence of feces and animals in the area around the house. Definitions were delineated at this time; however the observations remained subjective. In training enumerators for the Chifunde survey, more particular attention was paid to the standardization of definitions.

It was discovered, too, that during the Changara survey, the enumerators experienced difficulty in recording the actions involved in the observation of hand-washing. Conflicting responses were eliminated in the analysis in an attempt to increase the validity of this question. The question was revised for the Chifunde survey to disaggregate the actions, thereby facilitating the recording of actions.

There also exists the possibility that the questions were not precisely translated into the local languages, despite the back translation into Portuguese by a different translator than the one who translated from Portuguese into Nhungwe or Chichewa. Lastly, as there are regional variations in the local languages, it is possible that the enumerators did not consistently interpret questions and record responses.

Population figures for Chifunde District were not accurate, thus the sampling was skewed. For example, we found that the figures we used for Thequesse were highly inflated. During the actual survey in Thequesse, we were unable to conduct the number of interviews that had been anticipated, so one cluster was eliminated from there and added to Nsadzu where the population was much greater.

In addition, we did not include in our sample *bairros* that required more than two hours of walking to access. Nor did we include *bairros* that required wading a river to access.

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<sup>3</sup> In the Chifunde questionnaire, the wording was revised to read simply, "Where do you usually get your drinking water?" However, it was subsequently decided that the original wording to reflect today's behaviour was preferable.

**Part 3**

**Changara District Survey Results**

**3.1 Respondent characteristics**

Of the 329 interviews deemed valid, 83 percent were female, 16 percent male, and 1 percent were unrecorded. The greatest number of respondents were from M'Saua and the least number from Chioco because of the great difference in the respective population sizes. Table 1 displays the interviews stratified according to gender and area.

**Table 1: Survey respondents according to gender and area**

Area	Male		Female		Unknown		Total	
	#	%	#	%	#	%	#	% of all
Chicco	3	27%	8	73%	0	0%	11	3%
Marara	5	15%	28	85%	0	0%	33	10%
Mazoe Ponte	11	20%	42	78%	1	2%	54	16%
M'Saua	22	18%	98	81%	1	1%	121	37%
Muchamba	9	14%	57	86%	0	0%	66	20%
Phacassa	3	7%	41	93%	0	0%	44	13%
<b>Total</b>	<b>53</b>	<b>16%</b>	<b>274</b>	<b>83%</b>	<b>2</b>	<b>1%</b>	<b>329</b>	<b>100%</b>

The typical household was composed of a husband, one wife, and 3.2 children. One quarter of the households contained at least one additional person living and eating there, resulting in an average household size of 5.5 inhabitants.

Seventy-two of the households reported having no husband living there, leading to the assumption that 22 percent of the households were female-headed.

Eighty-seven percent (N=286) of the households had between one and ten children. Forty-seven households (14 percent) had between one and six other people living and/or eating with them, most generally extended family members (grandchildren, parents, or siblings of the parents), and in some cases, workers, neighbors, or other unspecified people.

Slightly more than half of the respondents stated that they were a permanent resident of the area in which they were living at the time of the interview. The remainder of the population consisted of recent returnees who reported having arrived as shown in Table 2.

**Table 2: Returnee status of population interviewed  
 (Residents self-declared as refugees/displaced)**

When returned	< 6 mos	6 mo > 1 yr	1 > 2 yrs	> 2 yrs
<b>Area</b>				
Chioco	11	0	0	0
Marara	4	2	1	3
Mazoe P.	5	4	4	10
M'Saua	6	6	9	24
Muchamba	29	3	5	6
Phacassa	9	3	1	6
<b>Total</b>	<b>64</b>	<b>18</b>	<b>20</b>	<b>49</b>
<b>Percent of Area</b>	<b>19.5%</b>	<b>5.5%</b>	<b>6.1%</b>	<b>14.9%</b>

These data suggest that Chioco had the greatest percentage of recent arrivals, with virtually all of the interviewees having returned within the six months prior to the survey. Muchamba also had a very high rate of recent returnees, with 37 percent of the interviewees having returned within the 6 months prior to the survey. M'Saua had the most stable population to date, with only 17 percent--followed by Marara with 21 percent--reporting having returned within the two years prior to the survey. When asked if they intend to remain, 85 percent responded affirmatively, 11 percent negatively, and 4 percent did not know.

### 3.2 Water availability and use

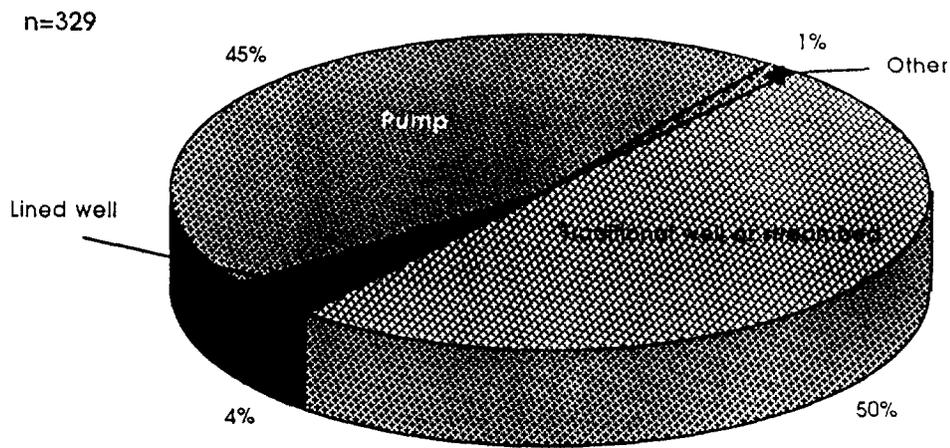
The survey team had visited all target areas for 10 days just prior to the survey to assess, among other things, the availability and condition of water points and latrines. Some of them neglected to assess the condition of wells dug in a river bed, but all pumps were assessed. (The assessment forms for Mazoe Ponte were lost during transport to Tete.)

**Table 3: Water availability according to type**

Village	Pump	Open Well	Total
Chioco	2	6	8
Marara	1	2	3
Mazoe Ponte	NA	NA	NA
M'saua	5	3	8
Muchamba	3	6	9
Phacassa	4	NA	4
<b>Totals</b>	<b>15</b>	<b>17</b>	<b>32</b>

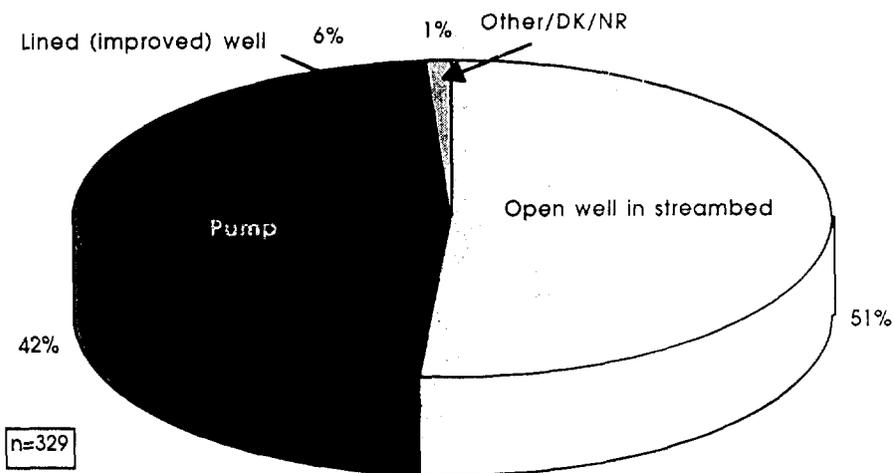
Fewer than half of the respondents reported having got their water from a pump on the day of the interview. One-half obtained it from an open well dug in a river bed. The remainder got their water from a lined well or had not fetched water on the day of the interview.

Figure 1: Where did you get your drinking water from today?



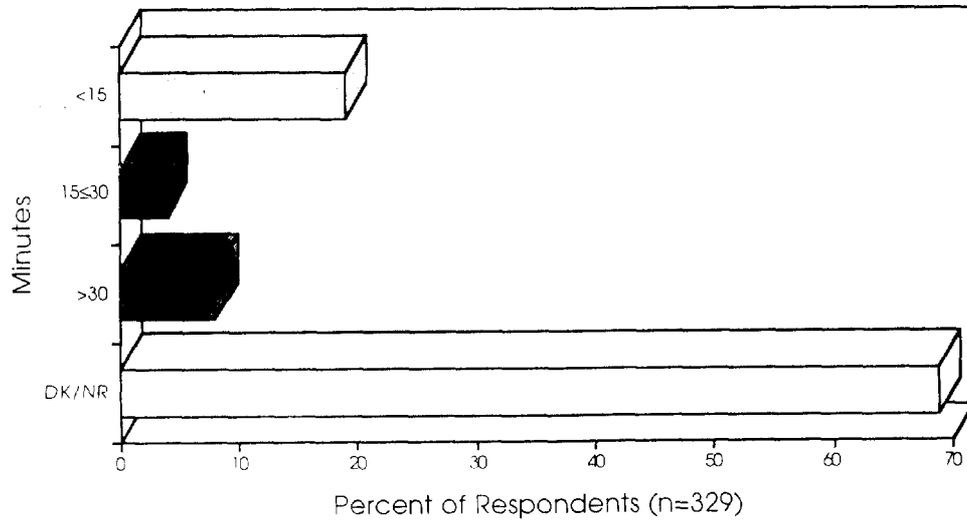
The closest water point to slightly over half of the households was an open well dug in a river bed. However, close to half reported that a pump was the closest source.

Figure 2: Which is the closest water point?



When asked how much time was spent walking to the water source, more than two-thirds did not know. Amongst the 102 respondents who specified the length of time, 62 percent answered less than 15 minutes, 14 percent between 15 and 30 minutes, and 24 percent more than 30 minutes.

Figure 3: How long did it take to walk to this water source?

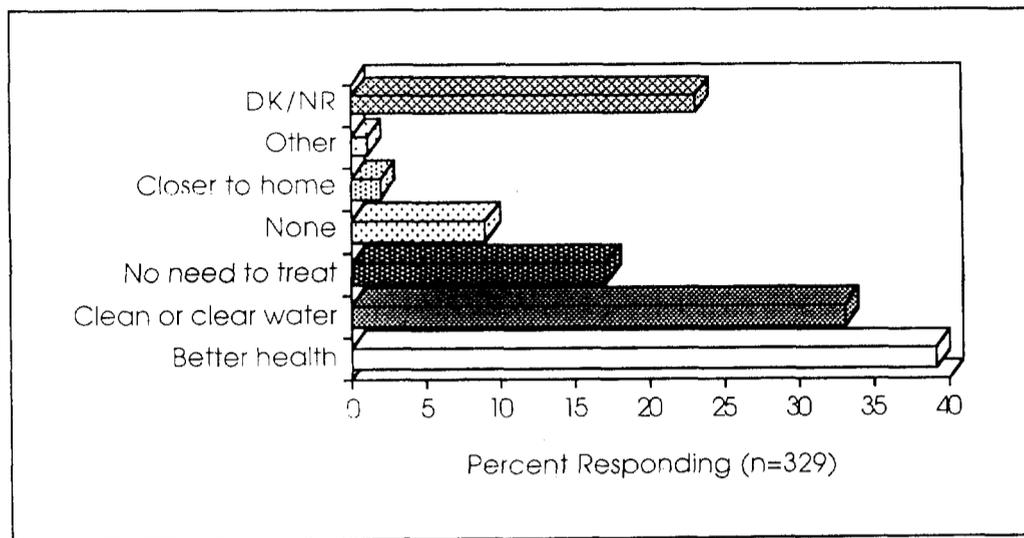


Typical of most African countries, women and girls were most often cited as the household members responsible for water collection. Ninety-two percent reported that the woman normally collects the water, 40 percent a girl, and less than 2 percent reported that a boy or man collects water (0.9% and 0.6% respectively).

In response to the question if anything was done to the drinking water collected that day, an overwhelming majority (93%) replied negatively. Two and one-half percent boiled their drinking water and 0.6 percent filtered it. The remainder did not know or had not collected water on the day of the interview.

When requested to state the advantages, if any, of getting drinking water from a pump or other protected source, the most common response was that people are less likely to fall ill. That the water from a pump is clear and clean was the second most frequent answer.

Figure 4: The advantages of drinking water from a pump



Three hundred six interviewees (93%) were willing to show where they stored their drinking water. Of these, 76 percent had a lid, 15 percent had no lid, and 8 percent had no special container for drinking water.

### 3.3 Water point observation

Fourteen water points with pumps and six unimproved wells are evaluated in this section. Sixty-nine percent of the pumps on 13 of the improved wells were working (information missing for one well).

The overall hygiene was poor: Only 21 percent had a clean surface, 36 percent had a drainage canal and fence, and more than one-half had people washing clothes at the well. However, none had a latrine within 30 meters, and only one had animals within 10 meters of the well.

Among the traditional wells, nearly all had stagnant water, animals, and people washing clothes nearby.

Water quality was reported for only half of the water points: six of the improved wells had salty water, but none of the traditional wells reported salty water. Thirty-six percent of the improved wells and one-half of the traditional wells frequently go dry.

**Table 4: Water source observation**

Observation	Boreholes		Open Wells	
	No	Yes	No	Yes
Surface clean, free of debris?	11	3	3	2
Apron in good repair?	5	9	NA	NA
Soak-away present?	9	5	1	5
Stagnant water present?	8	6	1	5
Erosion around edge of apron?	8	4	NA	NA
Animals within 5 - 10 m.?	12	1	0	6
Latrine within 30 meters?	14	0	6	0
Fence around water point?	9	5	6	0
People washing clothes?	6	7	1	5
Is there a long wait (>15 min)?	6	6	2	4
Frequently go dry?	7	5	3	3
Person designated to repair?	2	10	NA	NA
Pump works?	4	9	NA	NA
Is the water salty?	2	6	2	0

### 3.4 Latrine availability and use

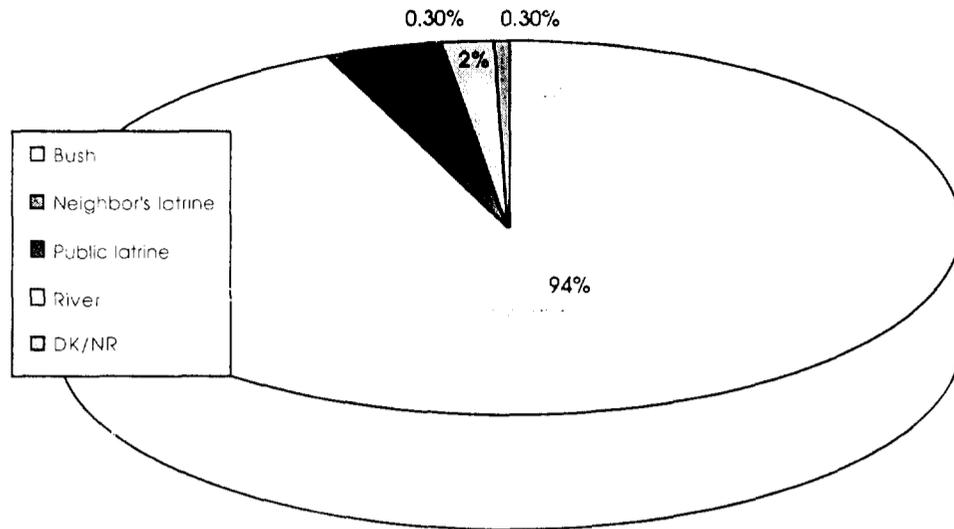
The latrine coverage found in this survey was abysmally low. Overall, 92 percent of all households had no latrine--only 25 of the 328 respondents reported the possession of a latrine. One latrine was shared by four families, reducing the actual number of latrines to twenty-two. Fourteen of these 22 latrines were located in Marara where World Vision International had recently conducted a latrine promotion campaign. If Marara is removed from the analysis, the latrine coverage is even bleaker with a mere 4 percent of households possessing a latrine.

**Table 5: Number of families with a latrine in 6 survey areas**

Village	Possession of Latrine			% Coverage
	Yes	No	Total	
Chioco	0	11	11	0.0%
Marara	14	19	33	42.4%
Mazoe	4	50	54	7.4%
M'saua	2	119	121	1.7%
Muchamba	5	60	65	7.7%
Phacassa	0	44	44	0.0%
<b>Totals</b>	<b>25</b>	<b>303</b>	<b>328</b>	<b>7.6%</b>

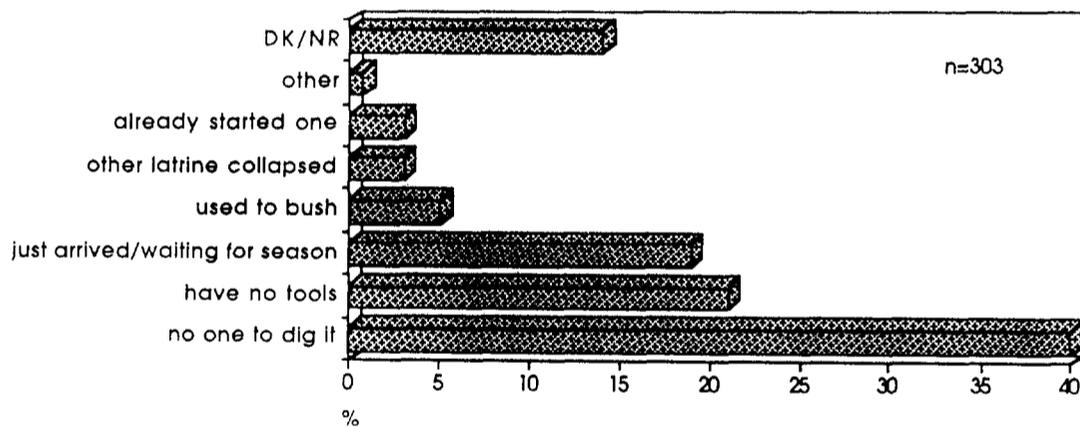
Among those without a latrine, 93 percent used the bush or fields for excreta disposal. Others reported using a neighbor's latrine or the river bed.

Figure 5: Disposal of excreta



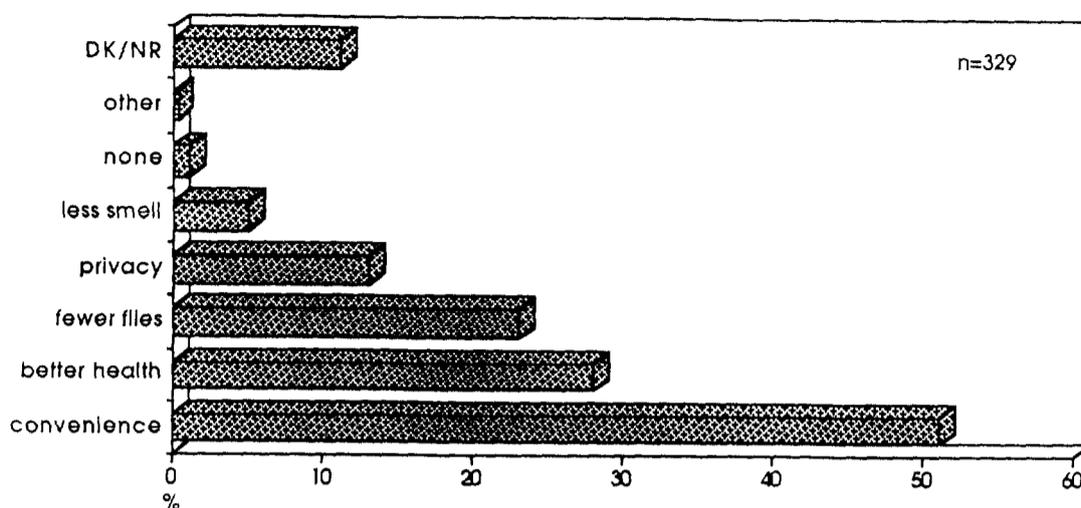
Most respondents explained that they did not have a latrine because there was no one to dig it, they had no tools, or they were waiting until the next dry season.

Figure 6: Why don't you have a latrine?



Virtually all respondents affirmed that they would like to have a family latrine. When asked why, most cited reasons of convenience: closer proximity to the house and privacy. Others cited health-related reasons such as better health and fewer flies.

Figure 7: What are the advantages of having a latrine?



All respondents were asked if they had ever had a concrete latrine slab, and if they would like to have one. Three-fourths reported that they had never had one, and 96 percent would like to have a concrete slab if available. Three percent were unsure, and only 0.6 percent stated that they would not like to have one.

### 3.5 Latrine Observation

All of the families that had a latrine at the time of the interview allowed the enumerator to enter the latrine and complete the observation section of the questionnaire. Of the 22 latrines, none had a cement slab, a water pot for hand-washing, or a soak-pit for waste water. Other information on the 22 latrines gathered from observation is presented in the following table.

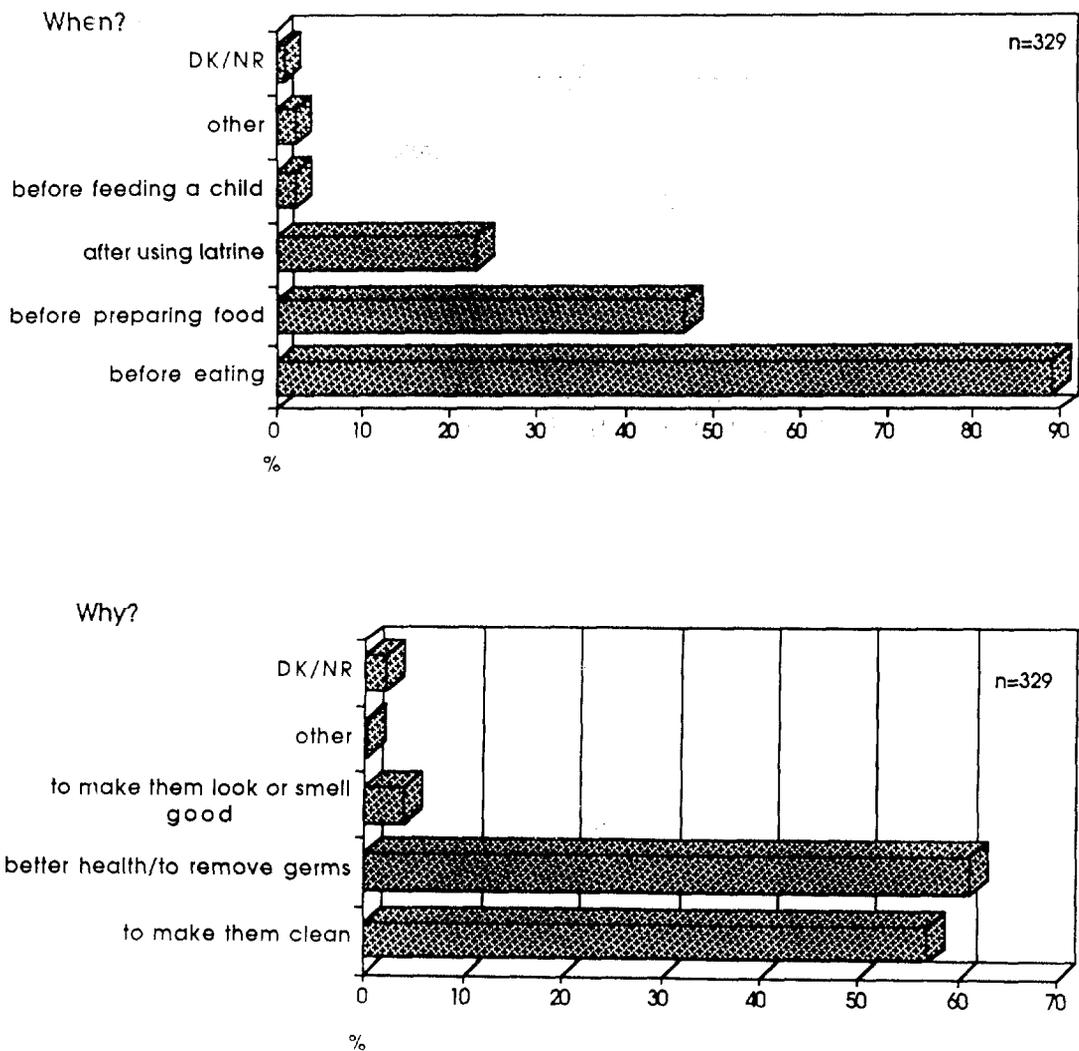
Table 6: Latrine Observation

Observation	Yes		No	
	#	%	#	%
Floor clean (without debris, urine, faeces)	9	43%	12	57%
Presence of cover for pit	10	45%	12	55%
Lid being used	11	50%	11	50%
Hole full or almost full	5	23%	17	77%
Structure in good repair	9	41%	13	59%
Privacy	14	64%	8	36%
Flies in latrine	17	77%	5	23%
Latrine located within 30 m. of a water point	17	77%	5	23%

### 3.6 Hand-washing

Knowledge of the importance of washing one's hands before eating and before food preparation was quite widespread: 89% and 47%, respectively. However, very few respondents (22%) cited the necessity of hand-washing after "using the latrine". When asked why it is important to wash one's hands, approximately two-thirds responded to lessen the chance of disease (better health) or to remove germs.

Figure 8: Importance of hand-washing: why and when?



A third question on hand-washing required an actual demonstration. Six percent of the interviewees refused to demonstrate; others merely described verbally how they wash their hands. For this analysis, only those who actually demonstrated with water are included in the following graphic.

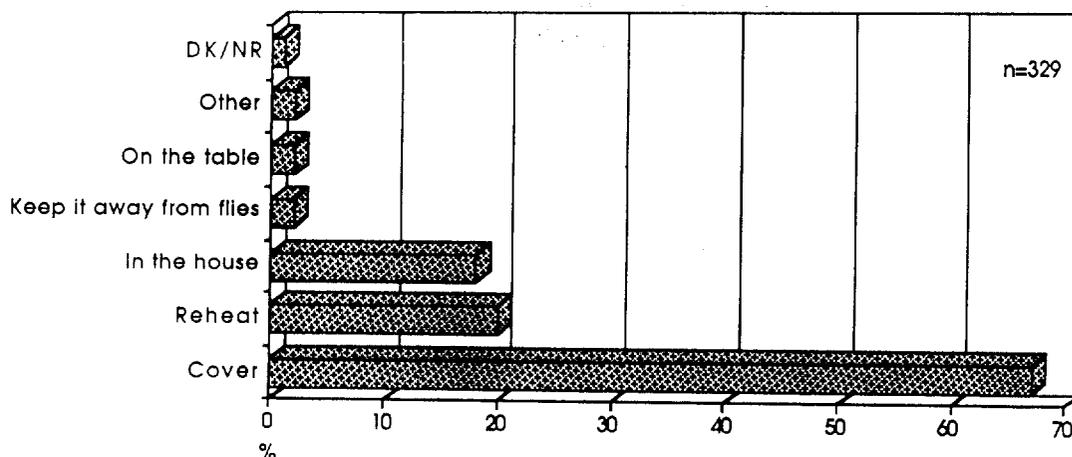
**Figure 9: How people wash their hands (n = 254)**

uses water only	78%	uses soap & water	9%
dips hands in container	88%	pours water over hands	12%
rubs vigorously	83%	doesn't rub vigorously	2%
washes between fingers	6%	doesn't wash between fingers	94%

### 3.7 Food hygiene

Three-fourths of the people reported that they store their leftover food in a covered container. Most of the others either never have leftover food or store it in an open container. The majority stated that the purpose in covering food is to keep flies off; 15 percent cited cleanliness or disease-prevention as reasons to cover leftover food. To keep leftover food safe for eating, two-thirds of the respondents said to keep it covered, 20 percent to reheat it, and 18 percent said to keep it inside the house.

**Figure 10: How to keep leftover food safe for eating**

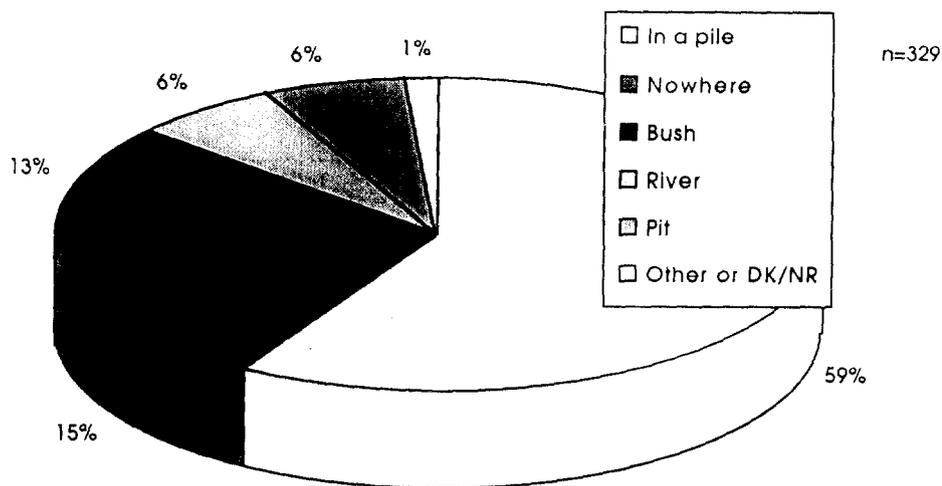


Most people (83%) wash raw fruits and vegetables before eating them. Very few, only 3 percent, reported that they peel them.

### 3.8 Rubbish disposal

In response to the sole question on rubbish disposal, well over half (58%) responded that they put their rubbish in a pile. Approximately equal numbers reported disposing their rubbish in the bush/outside the house or nowhere, 14 and 15 respectively. No one reported that they burn, bury or compost their rubbish.

Figure 11: Rubbish disposal



The enumerators were required to observe the cleanliness of the yard at the end of the interview. Approximately one-third had rubbish lying about; 41 percent had feces (most often animal feces) lying about; and 57 percent had unpenned animals in the yard.

### 3.9 Diarrheal disease

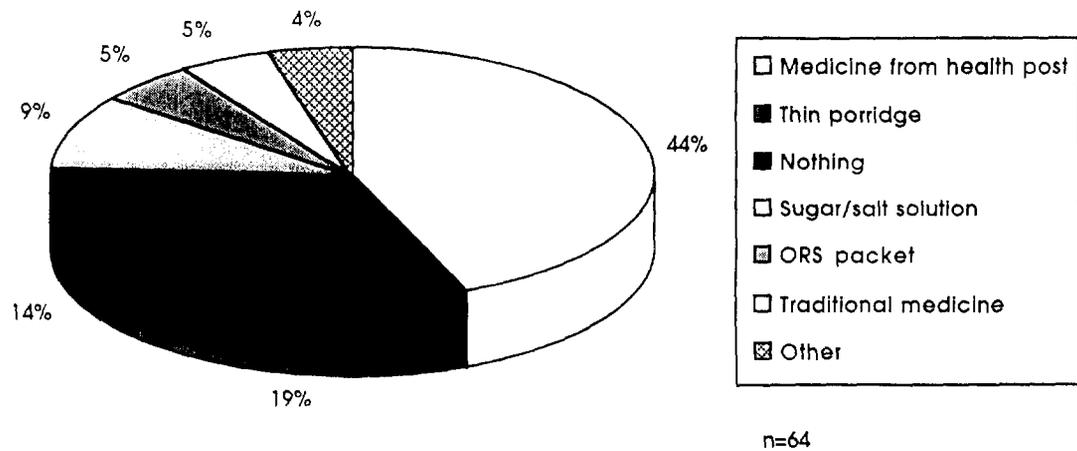
Nineteen percent of households reported a total of 64 cases of diarrhea (defined as three or more watery stools in one day) during the past three days as follows:

46 cases	< 5 years of age
18 cases	> 5 years of age

It is impossible to calculate the exact incidence with the available data, but a rough figure of 3.6% incidence in the overall population, and 11.7% among the children under 5 years of age can be inferred. This is consistent with ARC's rate of 11% found in Kaphiridzanje in March 1994, and somewhat consistent with Médecins Sans Frontières rate of 9.5% in August 1993.

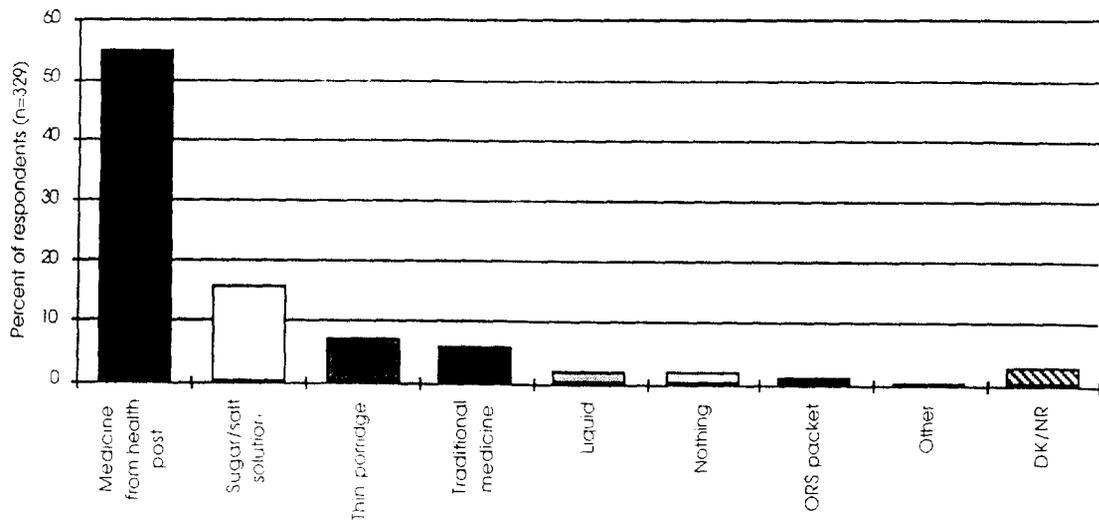
For the 64 cases of diarrhea reported, it was asked what was given to the person suffering from diarrhea. Over half of the respondents said the ill person was given medicine from the health post. Other popular responses included thin porridge, cereal based ORS, and nothing.

Figure 12: What was given to the person with diarrhea?



The remainder of the questions on diarrheal disease were general, that is, asked of all interviewees regardless of diarrhea morbidity in the household. When asked what one should give a person with three or more watery stools per day, the responses generally matched the responses given to the above question: 55 percent replied medicine from a health post and 22 percent said either a packet of ORS or cereal-based ORS. Other common replies were traditional medicine or nothing.

Figure 13: What should one give to a person with diarrhea?

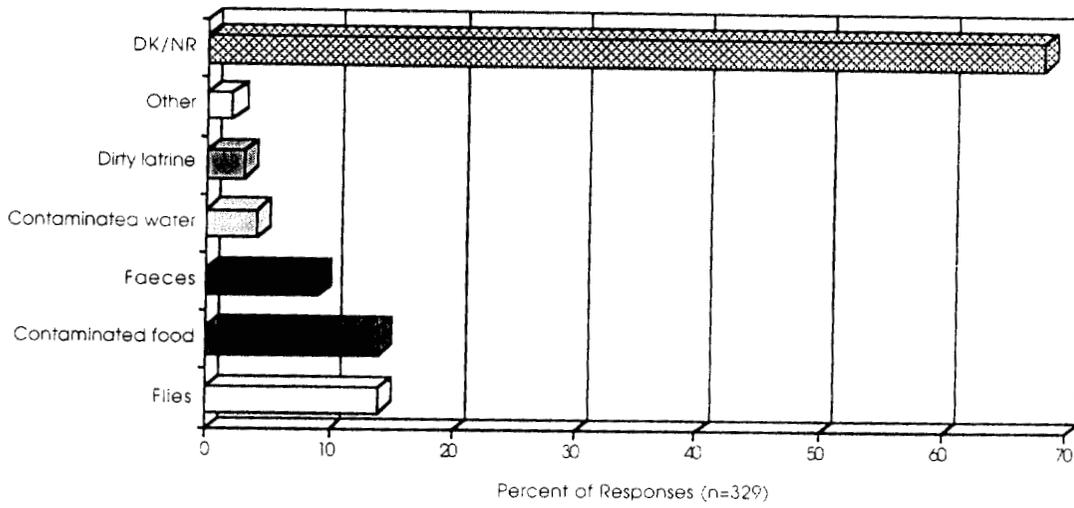


Most people (89%) said that they consult health post staff for advice or treatment in cases of diarrhea. The second most common response (15% of all respondents) was a traditional practitioner, followed by 5 percent who said a village health worker.

The lack of knowledge on how diarrhea is transmitted was fairly widespread, with 68 percent of respondents saying they did not know. Among those who supplied answers,

flies, contaminated food, feces, and contaminated water were the routes cited in order of importance.

Figure 14: Knowledge of transmission of diarrheal disease



Part 4

Chifunde District Survey Results

4.1 Respondent characteristics

Of 334 adults interviewed, 59 percent were women and 41 percent were men. The greatest number of respondents were from Thequesse, followed by Namiramba and Nsadzu. The fewest number of respondents were from Vila Mualadzi.

Table 7: Respondents according to gender and village

Village	Females		Males		Total	
	#	% of group	#	% of group	#	% of all
Bulimo	20	61%	13	39%	33	10%
Chifunde Sede	20	61%	13	39%	33	10%
Namiramba	50	62%	31	38%	81	24%
Nsadzu	36	51%	35	49%	71	21%
Thequesse	56	61%	36	39%	92	28%
Vila Mualadzi	16	67%	8	33%	24	7%
<b>TOTAL</b>	<b>198</b>	<b>59%</b>	<b>136</b>	<b>41%</b>	<b>334</b>	<b>100%</b>

The typical household had a husband, one wife, and 3.4 children, with a range from one to nineteen members. Slightly more than one-quarter had at least one additional person living there, resulting in an average household size of 5.7 inhabitants.

Only 87 percent of the households had a man living there, resulting in a total of 13 percent female-headed households.

Eighty-six percent of the households had between one and thirteen children living there. Twenty-eight percent had one to seven other people living and eating with them--primarily relatives, but some with orphans or workers.

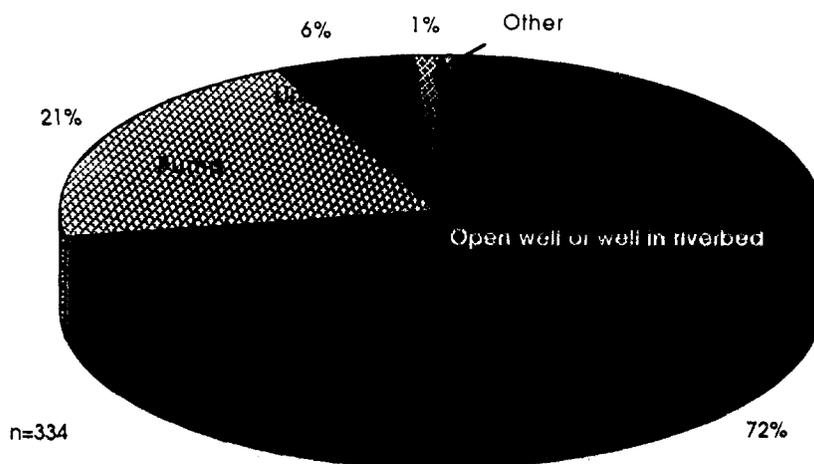
About two-thirds of the respondents had lived in the same village for more than one year; only one-quarter considered themselves a permanent resident of the area. Recent returnees consisted of 9 percent of respondents who had arrived within the 6 months prior to the survey and 30 percent who had arrived 6 to 12 months before the survey.

When asked if they intended to remain for more than a year, 90 percent responded affirmatively, and only 8 percent said no.

#### 4.2 Water availability and use

Nearly three-fourths of respondents reported that they usually get their drinking water from an open well or well in the river bed. About one-fifth got it from a pump.

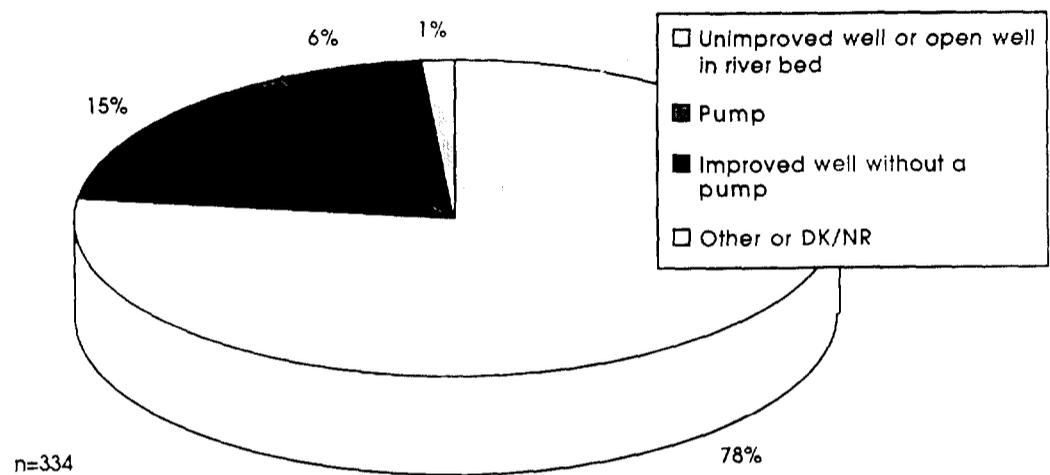
Figure 15: From where do you usually get your drinking water?



When the respondent was asked why she or he got drinking water from that source, the most common reason was that there was no other source. Almost 20 percent used the source because it was the closest, and 17 percent because there was no pump or the pump was not working.

The water point closest to more than three-fourths of the households was an unimproved well or well dug in a river bed. Others reported that a pump or improved well with no pump was the closest water source.

Figure 16: Which is the closest water point?



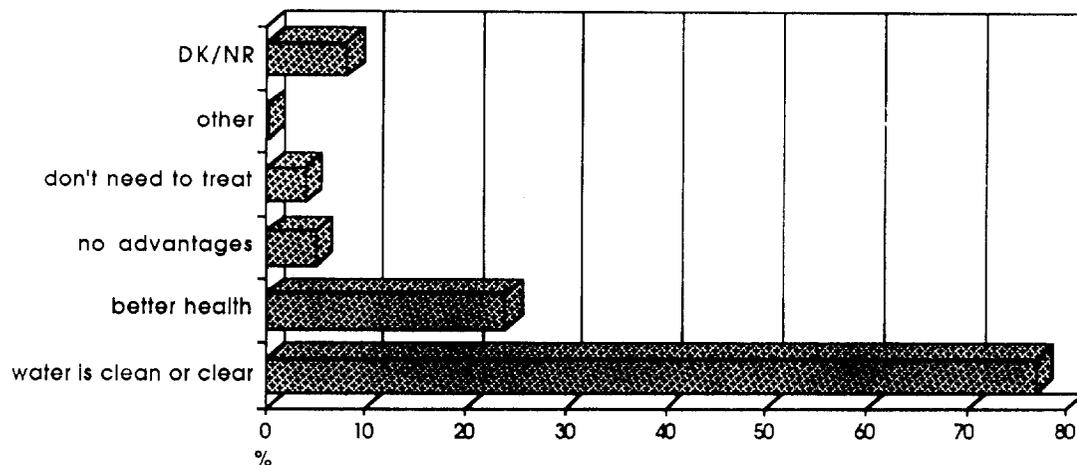
Ninety-two percent said they usually use the closest source. Only 7 percent said they use a protected water source even though it was not the source closest to home.

Typical of most African countries, women and girls were most often cited as the household members responsible for water collection. Ninety-five percent reported that the woman normally collects the water, 21 percent a girl, and less than 3 percent reported that a man or boy collects water (2.1% and 0.6% respectively).

Few respondents reported treating the drinking water most recently collected: Only 19 percent said they boiled and 1 percent filtered it. Twenty-two people said they cover their drinking water.

When requested to state the advantages, if any, of getting drinking water from a pump or other protected source, the most common response was that the water is clean or clear. That people have better health or are less likely to fall ill was the second most frequent response.

Figure 17: The advantages of drinking water from a pump



Two hundred sixty-three water containers were observed, over half (59%) of which were covered. Fourteen percent declined to show the enumerator, and 6 percent had no water container.

### 4.3 Latrine availability and use

As in Changara District, most families did not have a latrine. Only 16 percent of all households had a latrine, and 8 percent more reported that they use a neighbor's latrine. Latrine coverage was highest in Chifunde Sede (36%) and lowest in Thequesse (2%).

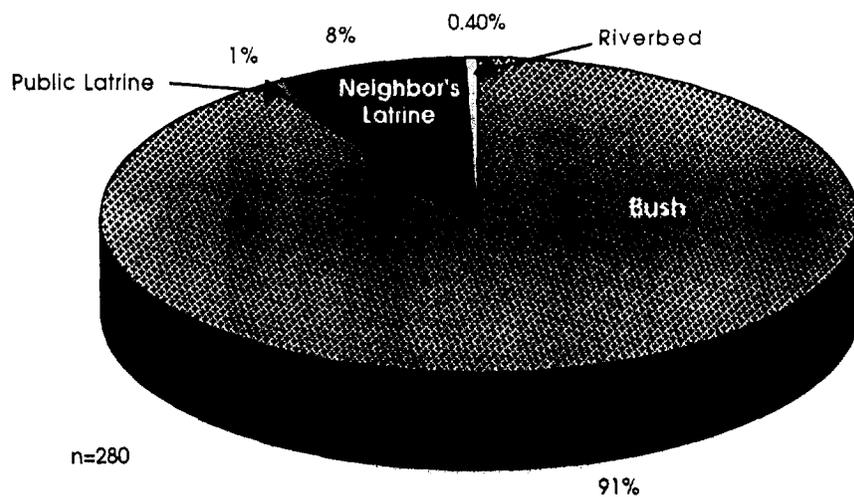
Table 8: Number of families with a latrine in 6 villages

Village	Possession of Latrine			% Coverage
	Yes	No	Total	
Bulimo	4	29	33	12.1%
Chifunde Sede	12	21	33	36.4%
Namiramba	12	69	81	14.8%
Nsadzu	18	53	71	25.4%
Thequesse	2	90	92	2.2%
Vila Mualadzi	4	20	24	16.7%
<b>Totals</b>	<b>52</b>	<b>282</b>	<b>334</b>	<b>15.6%</b>

Of those families with a latrine, all said that everyone in their household usually uses the latrine. Nearly half of those with a latrine said that someone from outside their household uses their latrine.

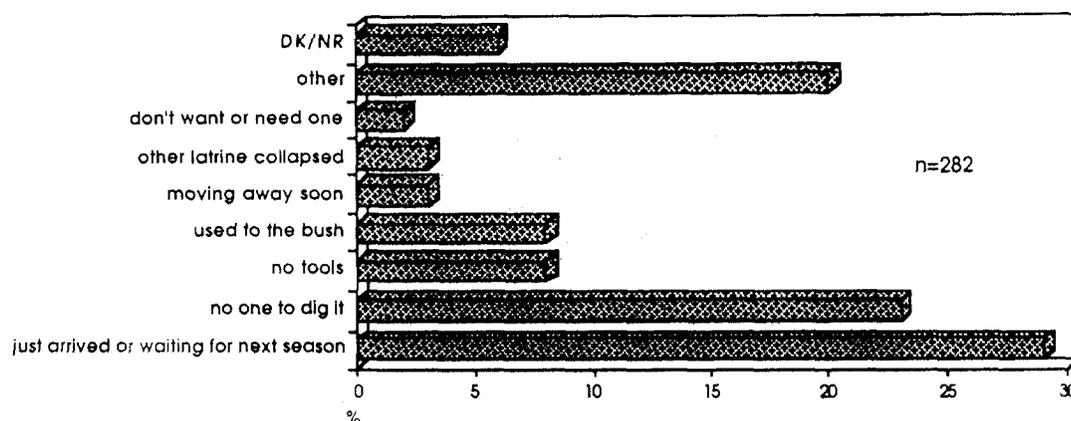
Among those without a latrine, most use the bush to defecate. Others use a neighbor's or a public latrine.

Figure 18: Excreta disposal for those with no latrine



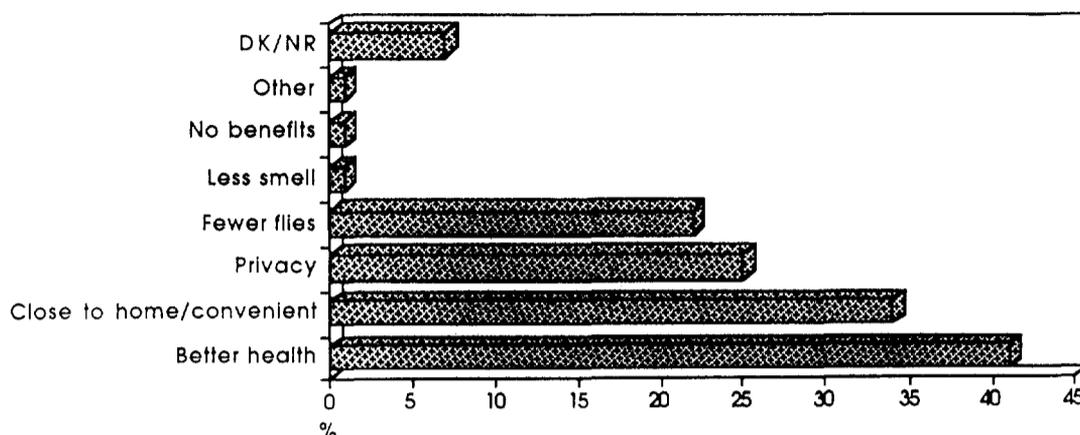
Most respondents explained that they did not have a latrine because they were waiting for the next season or they had no one to dig it.

Figure 19: Why don't you have a latrine?



Of 280 respondents who were asked if they would like to have a family latrine, only one said no. Although reasons of convenience (proximity to the home and privacy) were the most common advantages given, two-fifths cited better health.

Figure 20: What are the advantages of having a latrine?



All respondents were asked if they had ever had a concrete latrine slab, and if they would like to have one if available. Ninety percent reported that they had never had one, and 98 percent said that they would like to have one.

#### 4.4 Latrine observation

All of the families that had a latrine at the time of the survey allowed the enumerator to enter the latrine and complete the observation section of the questionnaire. Of the 52 latrines observed, only one had a concrete slab, 2 had a drainage canal for urine and waste water, and 18 had a lid. However, only 12 lids were actually on the pit. Well over half of the latrines were well-maintained: 60 percent of the floors were in good repair, 62 percent had no debris, water, or urine around the pit, and less than 20 percent had feces on the floor. Very few--only 6 percent--of the latrines had water nearby for washing hands.

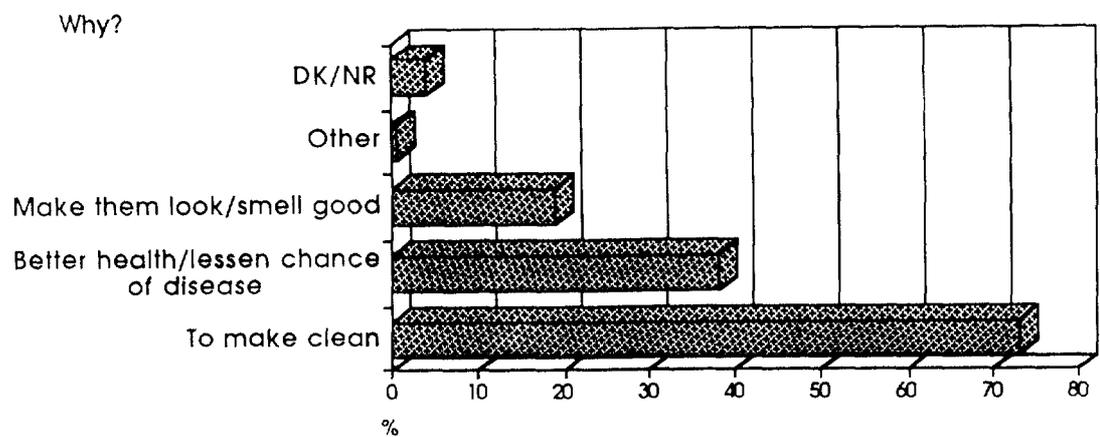
Table 9: Latrine Observation

Observation	Yes		No	
	#	%	#	%
Floor clean (without debris, urine, faeces)	31	60%	21	40%
Presence of cover for pit	18	35%	34	65%
Lid being used	12	24%	39	76%
Hole full or almost full	10	19%	42	81%
Structure in good repair	36	69%	16	31%
Privacy	40	77%	12	23%
Flies in latrine	47	92%	4	8%
Latrine located within 30 m. of a water point	12	23%	40	77%

#### 4.5 Hand-washing

Nearly three-fourths of the respondents knew that it is important to wash hands before eating; however only half that number knew that it is important to wash after using the latrine. Very few knew that one should wash the hands before preparing food or before feeding a child. When asked why it is important to wash one's hands, nearly half cited better health or to lessen the chance of disease. Many more said simply that we should wash our hands to make them clean.

Figure 21: Importance of hand-washing: when and why?



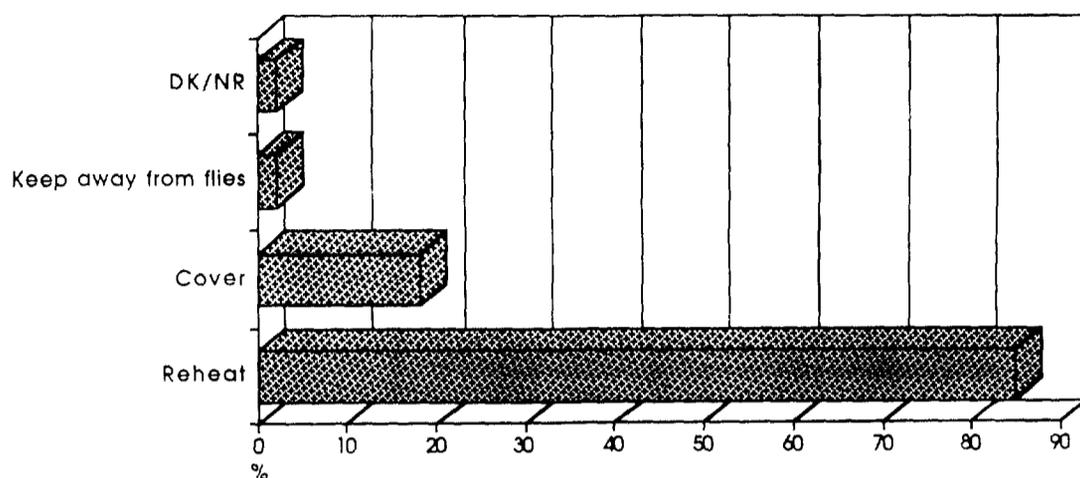
The question that required a hand-washing demonstration was divided into four discrete actions. The following chart depicts these.

uses water only	92%	uses soap & water	8%
dips hands in container	89%	pours water over hands	11%
rubs vigorously	98%	doesn't rub vigorously	2%
washes between fingers	13%	doesn't wash between fingers	87%

#### 4.6 Food hygiene

Over four-fifths of the respondents said they stored leftover food in a covered container and that prepared foods should be covered to protect it from flies. Others kept it in the house (25%) or gave it to animals (10%). One-fourth said that prepared food should be covered when not being eaten to prevent disease, and 81 percent said to keep flies off. Most people (85%) knew that reheating leftover food can make it safe for eating. (This is significantly higher than the 20 percent in Changara District.)

Figure 22: How to keep leftover food safe for eating

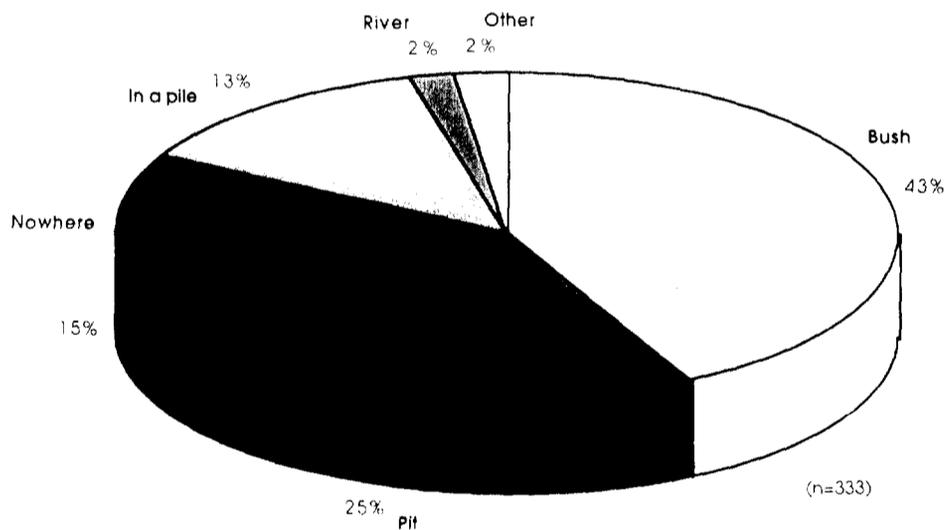


Over 80 percent said they wash raw fruits and vegetables before eating them. One-third reported that they peel them, and 5 percent rub them.

#### 4.7 Rubbish disposal

In response to the question on rubbish disposal, 42 percent said they dispose of it in the bush. One-fourth had a pit, 13 percent a pile, and 15 percent said they put it "nowhere". As in Changara District, no one reported burning, burying, or composting their rubbish.

Figure 23: Rubbish disposal



The enumerators observed the cleanliness of the yard during the interview. Slightly more than half had rubbish lying about, but most (42%) had only a little. Nearly one-third had animal feces present in the yard; again, most had only a little. Only 1 percent of yards had human feces present. Well over half (58%) had unpenned animals in the yard.

#### 4.8 Diarrheal disease

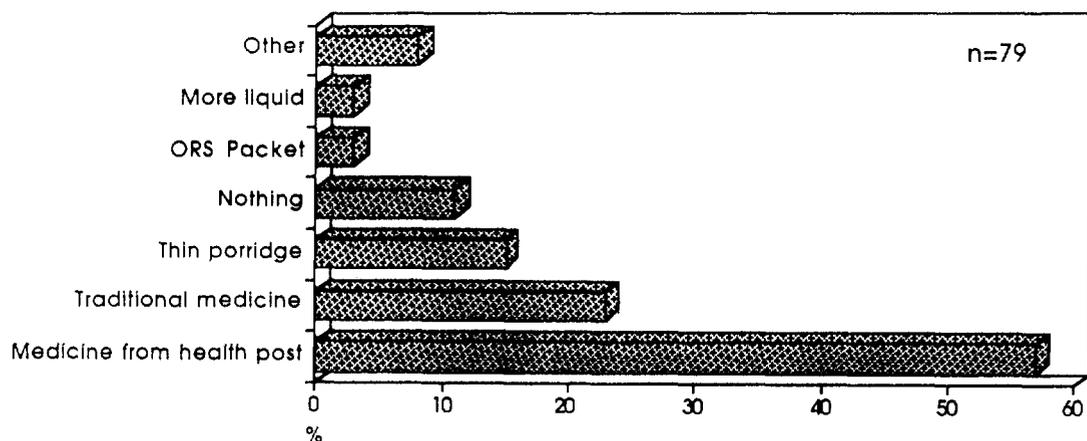
Twenty percent of households reported at least one case of diarrhea during the 3 days prior to the survey, with a total of 79 cases as follows:

Age Group	Cases
< 6 months	13
6 months > 5 years	32
> 5 years	34

Again, it is not possible to calculate the exact incidence with this data, but a rough figure of 10.7% among the children under 5 years of age, and 8.4% among the children 6 to 60 months can be inferred. The incidence among the overall population was approximately 4.1 percent.

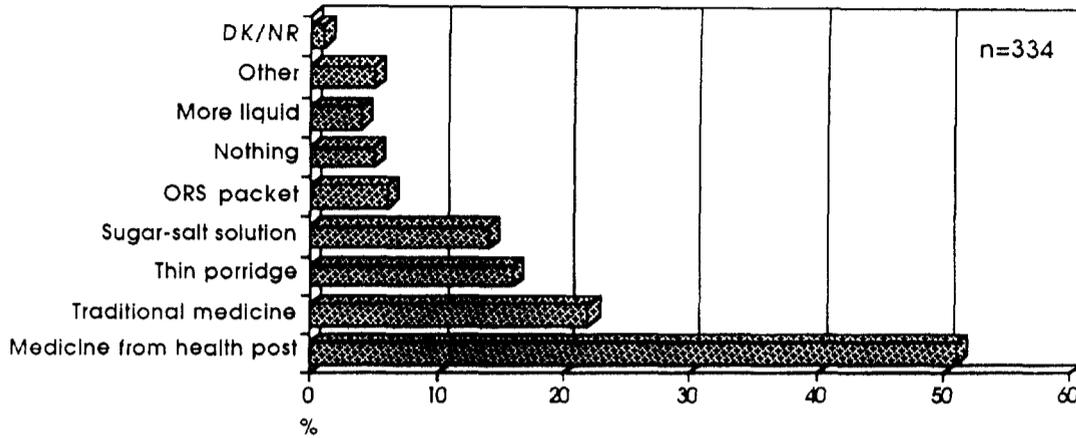
For the 79 cases of diarrhea reported, it was asked what was given to the ailing person. Over half said that he or she was given medicine from the health post, and fourth said traditional medicine. Others gave thin porridge or nothing. No one gave sugar-salt solution.

Figure 24: What was given to the person with diarrhea?



The general questions on diarrheal disease were asked of all interviewees. When asked what one should give to someone suffering from diarrhea, the responses mirrored fairly closely the responses to what was actually given, with the exception of sugar-salt solution.

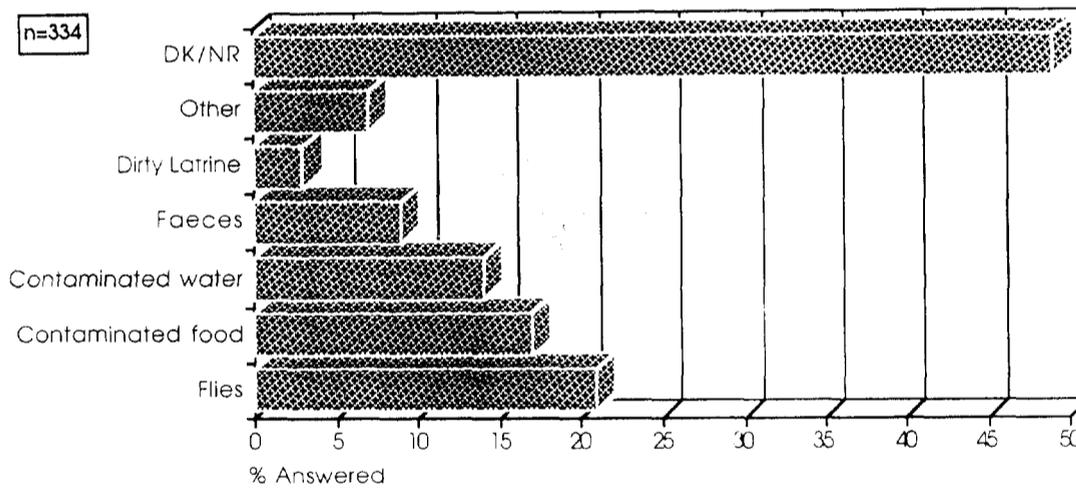
Figure 25: What should one give to a person with diarrhea?



The majority of people (58%) said they consult health post staff for advice or treatment in cases of diarrhea. Over one-quarter consult a traditional healer and 15 percent a pharmacist. Five percent did not respond or did not know.

Although much lower than the rate found in Changara District, the nearly half of all respondents who did not know how diarrhea is transmitted was still very high. Those who gave answers most often cited flies, followed by contaminated food, and water as routes of transmission. Only 9 percent knew that diarrhea can be transmitted by feces.

Figure 26: Knowledge of transmission of diarrheal disease



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## Part 5

### Recommendations

#### Water

1. All protected water sources that are introduced to a community should include the formation and training of a water point committee to ensure that there are community members to repair the pump, collect money to purchase spare parts, and to ensure hygiene around the well site.
2. In areas where there are insufficient protected water sources (or in the event of pump break-downs), the treatment of drinking water should be taught. Either boiling or filtering and treating with chlorine bleach (javel) should be an integral part of the water point committee's training program.
3. Additionally, the regular cleaning of water storage containers and the promotion of a lid to minimize opportunities to contaminate drinking water should be part of a water hygiene program.
4. A mid-term evaluation should determine the reliability of water at recently constructed ARC water points, their proper maintenance, the effectiveness of the water point committees in collecting funds to purchase spare parts for the maintenance and repair of pumps, and the community's compliance with the rules established by the committee.

#### Latrines

1. When mounting a latrine promotion campaign, the safety, security, and hygiene of a concrete slab should be emphasized--the former to encourage parents to teach their young children to use the latrine. However, the construction of any type of latrine should be encouraged. If people do prefer a traditional design, staff should offer maximum help to ensure that the latrine is safe and can be maintained properly.
2. In cases where people do not have a latrine because of lack of tools or there is no one to dig it, means to eliminate these excuses should be offered. For example, basic digging tools can be loaned to people for the former. For the latter, a mutual-help arrangement could be encouraged: widows or elderly people could be responsible for delivering materials (sand and water) for the latrine slab in exchange for digging the pit.
3. Sanitation education should include messages about excreta disposal when away from home. As the majority of the rural population are agrarian, they spend long periods of time away from the house. In addition, use of the river for defecation and urination should be strongly discouraged, especially because many people obtain their drinking water from this source.
4. During a mid-term evaluation, people's use of latrines and hand-washing systems should be assessed. Because so few people had latrines at the time of this survey, it was impossible to determine latrine behaviours. It will be especially important to learn about behaviours of young children, the disposal of their excreta, and if they are being trained to use latrines.
5. People from the villages should be trained to properly locate latrines so that at the project's end, when and if people continue to construct latrines, they will not risk contamination of water sources.

## Hygiene

1. Many people reported washing their hands before eating or preparing food. Relatively few, however, reported washing hands after "using the latrine". Because the Changara phase of this project is starting at close to 0 latrine coverage, it offers an excellent opportunity to link hand-washing with latrine use. Therefore, it is recommended to encourage people to build an easy appropriate technology hand-washing system at the same time that they build a latrine. If there is a lack of materials, ARC should make an effort to supply recycled materials.
2. Additionally, proper hand-washing techniques should be encouraged. Pouring water over the hands rather than dipping should be taught to avoid contamination of the water. Vigorous rubbing and cleaning between the fingers where germs are likely to accumulate should be taught. Education on hand-washing should include messages on both when and how to wash hands.
3. Proper rubbish disposal should be encouraged as part of ARC's hygiene education campaign. For example, avoiding leaving empty tins, bottles, and broken pottery around the house where mosquitoes can breed, and metal and glass that can cut children should be part of the campaign.

## General

1. If potable water and sanitation activities are executed in an area, they should be fully integrated so that the people understand the links between unprotected water sources, diarrheal disease (as well as other water-related diseases such as bilharzia), latrine use in the interruption of the faecal-route of disease transmission, and importance of hand-washing.
2. Health education should be done on all of the topics included in this survey, with particular emphasis on areas where knowledge was weak. In cases where misconceptions appeared to be fairly general across the population, they should be addressed through health education in target communities.
3. Any health and sanitation program undertaken in areas with a large returnee population should encourage self-reliance and self-help. In the initial stages of ARC's activities in Tete Province, an attitude of "You must do for us" was frequently encountered. We quickly learned to require a community contribution and emphasized the community's "ownership" of a particular water point or community latrine to promote a sense of self-reliance.

## Part 6

### References

1. American Refugee Committee. Baseline Survey Questionnaire, Kaphiridzanje. March 1994.
2. PHC MAP, "Assessing Community Health."
3. Water and Sanitation for Health (WASH) Field Report No. 262, "Socioeconomic Research of Household Sanitation and Guidelines for Program Planners", April 1989.

**Appendix A: Water and Sanitation Baseline Questionnaire**

*Changara District*

**BASELINE WATER AND SANITATION SURVEY**  
**AMERICAN REFUGEE COMMITTEE**  
 Changara District  
 July 25-August 5, 1994

**100 IDENTIFICATION**

101 ID No: \_\_\_\_\_

- 102 Village: \_\_\_\_\_  
 103 Bairro: \_\_\_\_\_  
 104 Name of interviewer: \_\_\_\_\_  
 105 Date: \_\_\_\_/\_\_\_\_/94

**200 RESPONDENT'S CHARACTERISTICS**

- 201 Respondent's sex:  
 1.  female  
 2.  male
- 202 Who in your family live and eat with you here?  
 1.  husband  
 2.  wife  
 3.  children (NUMBER: \_\_\_\_\_)  
 4.  others (SPECIFY WHO AND NUMBER: \_\_\_\_\_)
- 203 When did you arrive in \_\_\_\_\_?  
 1.  arrived in \_\_\_\_\_ (month) of 19\_\_\_\_ (year)  
 2.  permanent resident  
 9.  DK/NR
- 204 Do you plan to stay here in \_\_\_\_\_ for more than one year?  
 0.  no  
 1.  yes  
 9.  DK/NR

**300 WATER**

- 301 From where did you get your drinking water today?  
 1.  pump  
 2.  lined (improved) well  
 3.  open well dug in river bed  
 4.  other (SPECIFY: \_\_\_\_\_)  
 9.  DK/NR (GO TO 304)
- 302 How long does it take to walk to this source of water?  
 1.  less than 15 minutes  
 2.  between 15 and 30 minutes  
 3.  more than 30 minutes  
 9.  DK/NR  
 (DK/NR = DON'T KNOW/NO RESPONSE)

- 303 Why did you get your water from there? (MULTIPLE RESPONSES ACCEPTED)
1.  water source is closest
  2.  nearby pump is salty/highly mineralized
  3.  water is clean
  4.  no waiting
  5.  reliable/usually water
  6.  regular source dry/not working
  7.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR
- 304 Which is the closest water point?
1.  pump
  2.  lined (improved) well
  3.  open well dug in river bed
  4.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR
- 305 Who normally gets the water for this household? (MULTIPLE RESPONSES ACCEPTED)
1.  girl
  2.  woman
  3.  boy
  4.  man
  9.  DK/NR
- 306 Did you do anything to the drinking water you collected most recently?
0.  nothing
  1.  boil
  2.  filter with cloth
  3.  chlorinate
  4.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR
- 307 What are the advantages, if any, of getting drinking water from a pump or a protected well instead of an unprotected well or riverbed? (MULTIPLE RESPONSES ACCEPTED)
0.  no advantages
  1.  clear/clean
  2.  less likely to get sick/better health
  3.  don't need to treat
  4.  closer to house
  5.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR
- 308 Will you please show me where you store your drinking water. (OBSERVE: IS THE CONTAINER COVERED WITH A LID?)
0.  no
  1.  yes
  2.  no container
  3.  refused to show

400 LATRINES

401 Does your family currently have a latrine here in \_\_\_\_\_?

- 0.  no (GO TO 406)
- 1.  yes
- 9.  DK/NR (GO TO 406)

402 Does everyone in your family usually use your latrine?

- 0.  no
- 1.  yes (go to 404)
- 9.  DK/NR (go to 404)

403 Why doesn't everyone in your family use the latrine? (MULTIPLE RESPONSES ACCEPTED)

- 1.  age
- 2.  sex
- 3.  don't like latrines
- 4.  prefer bush
- 5.  cultural belief
- 6.  dirty/smells
- 7.  work out in fields/away from latrines most of day
- 8.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

404 Are there others not from your family who use your latrine?

- 0.  no
- 1.  yes
- 9.  DK/NR

405 Since you've been here, has your latrine ever collapsed?

- 0.  no
- 1.  yes

(GO TO 409)

406 Because your family does not currently have a latrine, where do family members usually (every day) go to defecate?

- 1.  bush/field
- 2.  neighbor's latrine
- 3.  a common/public latrine; if so specify:
  - a.  school
  - b.  health post
  - c.  market
  - d.  church/mosque
- 4.  in river
- 5.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

- 407 Why don't you have a latrine? (MULTIPLE RESPONSES ACCEPTED)
0.  don't want or need one
  1.  no tools/equipment
  2.  no one to dig it
  3.  don't like smell/bugs
  4.  just arrived/waiting for next season
  5.  moving away soon
  6.  other latrine recently collapsed/filled
  7.  sharing latrine/using public latrine
  8.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR
- 408 Would you like to have a family latrine?
0.  no
  1.  yes
  9.  DK/NR
- 409 What are the benefits, if any, of having a latrine?  
(MULTIPLE RESPONSES ACCEPTED)
0.  no benefits
  1.  privacy
  2.  less smell
  3.  fewer flies
  4.  less chance of getting disease/ better health
  5.  close/near home/convenient
  6.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR
- 410 Have you ever had a cement latrine slab? (SHOW PICTURES)
0.  no
  1.  yes
  9.  DK/NR
- 411 Given a choice, would you want a cement latrine slab?
0.  no
  1.  yes
  9.  DK/NR
- 412 What are the advantages, if any, of a cement latrine slab? (MULTIPLE RESPONSES ACCEPTED)
0.  no advantages
  1.  cleaner/more hygienic
  2.  fewer flies
  3.  less bad smell
  4.  less likely to collapse/stronger
  5.  easier to clean/maintain
  6.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR

---

**500 WASHING**

501 When is it important to wash your hands? (MULTIPLE RESPONSES ACCEPTED)

1.  before food preparation
2.  before eating
3.  before feeding a child
4.  after using the latrine
5.  other (SPECIFY: \_\_\_\_\_)
9.  DN/NR

502 Why is it important to wash one's hands? (MULTIPLE RESPONSES ACCEPTED)

1.  to make them clean
2.  to make them look/smell good
3.  to lessen chance of disease/better health/remove germs
4.  other (SPECIFY: \_\_\_\_\_)
9.  DK/NR

503 Please demonstrate how you normally wash your hands?  
(NOTE THE FOLLOWING:)

0.  refuses to demonstrate
1.  uses soap and water
2.  uses water only
3.  dips hands in water container
4.  pours water over hands
5.  rubs hands together
6.  does not rub hands together
7.  washes between fingers

---

**600 FOOD HYGIENE**

601 Where do you store leftover food?

0.  never have leftover food
1.  covered container
2.  open container
3.  no container (in the open)
4.  other (SPECIFY: \_\_\_\_\_)
9.  DK/NR

602 How do you keep leftover food safe for eating? (MULTIPLE RESPONSES ACCEPTED)

1.  keep it covered
  2.  reheat it
  3.  keep it away from flies
  4.  other (SPECIFY: \_\_\_\_\_)
  9.  DK/NR
- 49

603 What do you do with raw fruits and vegetables before eating them?

- 0.  nothing
- 1.  wash them
- 2.  rush them off/rub them
- 3.  peel them
- 4.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

604 Why should prepared food be covered when not being eaten?

- 1.  keeps food warm
- 2.  keeps flies off
- 3.  prevents disease
- 4.  keeps food clean
- 9.  DK/NR

---

700 RUBBISH

701 Where do you put your rubbish? (IF "BIN" SPECIFIED, THEN PROBE FOR WHERE THAT GOES WHEN IT'S FULL)

- 0.  nowhere
- 1.  pit
- 2.  latrine
- 3.  burn
- 4.  in the bush/outside house
- 5.  pile
- 6.  in the river
- 7.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

---

800 DIARRHOEA

801 In the past 3 days has anyone in this household had diarrhoea? By diarrhoea, I mean 3 or more watery stools in a day.

- 0.  no (GO TO 804)
- 1.  yes
- 9.  DK/NR (GO TO 804)

802 How many of those with diarrhoea are:

- 1.  less than 5 years of age (RECORD NUMBER: \_\_\_\_\_)
- 2.  more than 5 years of age (RECORD NUMBER: \_\_\_\_\_)
- 9.  DK/NR

803 What did you give him/her? (MULTIPLE RESPONSES ACCEPTED)

- 0.  nothing
- 1.  liquid
- 2.  sugar-salt solution
- 3.  thin porridge / (cereal based ORS)
- 4.  ORS packet
- 5.  medicine from health post
- 6.  traditional medicine
- 7.  less or no food/drink
- 8.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

(GO TO 805)

446

804 If someone has 3 or more watery stools in a day, what should you give him/her? (MULTIPLE RESPONSES ACCEPTED)

- 0.  nothing
- 1.  liquid
- 2.  sugar-salt solution
- 3.  thin porridge / (cereal based ORS)
- 4.  ORS packet
- 5.  medicine from health post
- 6.  traditional medicine
- 7.  less or no food/drink
- 8.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

805 Who do you consult for advice or treatment? (MULTIPLE RESPONSES ACCEPTED)

- 0.  no one
- 1.  village health worker
- 2.  health post staff
- 3.  pharmacist
- 4.  traditional practitioner (SPECIFY WHOM: \_\_\_\_\_)
- 5.  family
- 6.  friend
- 7.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

806 How is diarrhoea transmitted? (MULTIPLE RESPONSES ACCEPTED)

- 1.  flies
- 2.  contaminated water
- 3.  contaminated food
- 4.  dirty latrine
- 5.  feces
- 6.  other (SPECIFY: \_\_\_\_\_)
- 9.  DK/NR

**900 YARD OBSERVATION**

(LOOK AROUND THE YARD. WHAT DO YOU SEE?)

	OBSERVE			COMMENTS
901	rubbish lying about	(0) no	(1) yes	
902	animal/human feces lying about	(0) no	(1) yes	
903	unpenned animals	(0) no	(1) yes	

45

1000 LATRINE OBSERVATION

(IF THE RESPONDENT HAS A PRIVATE LATRINE, THEN ASK THE FOLLOWING-- OTHERWISE END THE INTERVIEW:)

1001 Will you please show me where your latrine is located?:

(OBSERVE LOCATION OF THE LATRINE:)

- 0.  no latrine
- 1.  in yard/next to house
- 2.  at neighbor's house
- 3.  far from house

1002 May I go into your latrine?

- 0.  no (END THE INTERVIEW AND THANK RESPONDENT)
- 1.  yes (IF YES, WALK INTO LATRINE AND OBSERVE THE FOLLOWING):

	OBSERVE			COMMENTS
1003	Cement slab	(0) no	(1) yes	
1004	Floor/slab in good repair	(0) no	(1) yes	
1005	Floor/slab clean (no debris/feces/urine on it)	(0) no	(1) yes	
1006	Cover/lid for hole in latrine	(0) no	(1) yes	
1007	Hole covered/lid being used	(0) no	(1) yes	
1008	Hole full or almost full	(0) no	(1) yes	
1009	Walls and roof are strong; not going to collapse	(0) no	(1) yes	
1010	Can you be seen when in latrine?	(0) no	(1) yes	
1011	Flies in latrine	(0) no	(1) yes	
1012	Water pot within 5 m. for washing hands	(0) no	(1) yes	
1013	Water pot has water in it	(0) no	(1) yes	
1014	Cup next to/on top of water pot for dipping	(0) no	(0) yes	
1015	Soak pit	(0) no	(0) yes	
1016	More than 30 meters from water point	(0) no	(0) yes	

THIS CONCLUDES THE INTERVIEW.

THANK THE RESPONDENT FOR THEIR TIME AND COOPERATION.

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**Appendix B: Water and Sanitation Baseline Questionnaire**

*Chifunde District*

Water and Sanitation Baseline Survey  
American Refugee Committee  
Chifunde District  
February 1995

100 IDENTIFICATION

- 101 ID N°: \_\_\_\_\_  
102 Village: \_\_\_\_\_  
103 Bairro: \_\_\_\_\_  
104 Interviewer: \_\_\_\_\_  
105 Date: \_\_\_\_ / Feb / 1995

---

200 RESPONDENT'S CHARACTERISTICS

201 Respondent's sex:

1.  female  
2.  male

\* 202 Who lives and eats here in this household?

1.  respondent  
2.  husband or wife  
3.  children (NUMBER \_\_\_\_\_)  
4.  others

SPECIFY WHO: \_\_\_\_\_  
AND NUMBER: \_\_\_\_\_

203 How long have you lived in \_\_\_\_\_?

1.  less than 6 months  
2.  6 months to 1 year  
3.  1 to 2 years  
4.  permanent resident

204 Do you plan to stay here in \_\_\_\_\_ for more than 1 year?

0.  no  
1.  yes  
9.  DK/NR<sup>1</sup>

---

300 WATER

301 From where do you usually get your drinking water?

1.  pump  
2.  lined well/improved well  
3.  open well/well in river bed  
4.  other (SPECIFY \_\_\_\_\_)  
9.  DK/NR (GO TO 304)

---

<sup>1</sup> Don't Know/No Response

\* Implemented using multiple questions

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- 302 Why do you get water from there?
1.  water source is closest
  2.  water is clean
  3.  no waiting
  4.  reliable/usually water
  5.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 303 Which is the closest water point?
1.  pump
  2.  open unimproved well/well in river bed
  3.  lined/improved well
  4.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 304 Who normally gets the water for this household? (MULTIPLE RESPONSES ACCEPTED)
1.  woman
  2.  girl
  3.  boy
  4.  man
  9.  DK/NR
- 305 Did you do anything to the water you collected most recently? (MULTIPLE RESPONSES ACCEPTED)
0.  nothing
  1.  boil
  2.  filter with a cloth
  3.  chlorinate
  4.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 306 What are the advantages, if any, of getting drinking water from a pump or protected well instead of from an unprotected well or river bed? (MULTIPLE RESPONSES ACCEPTED)
0.  no advantages
  1.  water is clear/clean
  2.  less likely to get sick/better health
  3.  don't need to treat
  4.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 307 Will you please show me where you store your drinking water? (OBSERVE: IS THE CONTAINER COVERED WITH A LID?)
0.  no
  1.  yes
  2.  no container
  3.  refused to show

---

#### 400 LATRINES

- 401 Does your family currently have a latrine here in \_\_\_\_\_?
0.  no (GO TO 406)
  1.  yes
  9.  DK/NR (GO TO 406)

- 402 Does everyone in your family usually use your latrine?  
0.  no  
1.  yes (GO TO 404)  
9.  DK/NR (GO TO 404)
- 403 Why doesn't everyone in your family use the latrine?  
(MULTIPLE RESPONSES ACCEPTED)  
1.  age (SPECIFY AGES THAT DO NOT USE \_\_\_\_\_)  
2.  don't like latrines/prefer bush  
3.  dirty/smells bad  
4.  work out in fields/away from latrines most of day  
5.  other (SPECIFY \_\_\_\_\_)  
9  DK/NR
- 404 Are there others not from your family who use your latrine?  
0.  no  
1.  yes  
9.  DK/NR
- 405 Since you've been here, has your latrine ever collapsed?  
0.  no  
1.  yes  
9.  DK/NR
- (GO TO 409)
- 406 Because your family does not currently have a latrine, where do family members usually go to defecate?  
1.  bush/field  
2.  neighbor's latrine  
3.  public latrine: SPECIFY:  
a.  school  
b.  health post  
c.  market  
4.  in river bed  
5.  other (SPECIFY \_\_\_\_\_)  
9.  DK/NR
- 407 Why don't you have a latrine? (MULTIPLE RESPONSES ACCEPTED)  
0.  don't want or need one  
1.  no tools/equipment  
2.  no one to dig it  
3.  don't like smell/bugs  
4.  just arrived/waiting for next season  
5.  moving away soon  
6.  other latrine recently collapsed  
7.  used to bush  
8.  other (SPECIFY \_\_\_\_\_)  
9.  DK/NR
- 408 Would you like to have a family latrine?  
0.  no  
1.  yes  
9.  DK/NR

- 409 What are the benefits, if any, of having a latrine? (MULTIPLE RESPONSES ACCEPTED)
0.  no benefits
  1.  close to home/convenient
  2.  privacy
  3.  less smell
  4.  fewer flies
  5.  less chance of getting disease/better health
  6.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 410 Have you ever had a cement latrine slab? (SHOW PICTURE)<sup>+</sup>
0.  no
  1.  yes
  9.  DK/NR
- 411 If it were possible, would you want a cement latrine slab?
0.  no
  1.  yes
  2.  DK/NR
- 412 What are the advantages, if any, of a cement latrine slab? (MULTIPLE RESPONSES ACCEPTED)
0.  no advantages
  1.  cleaner/more hygienic
  2.  fewer flies
  3.  less bad smell
  4.  less likely to collapse/stronger
  5.  easier to clean/maintain
  6.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR

## 500 HAND-WASHING

- 501 When is it important to wash your hands? (MULTIPLE RESPONSES ACCEPTED)
1.  before eating
  2.  before preparing food
  3.  before feeding a child
  4.  after using the latrine
  5.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 502 Why is it important to wash one's hands? (MULTIPLE RESPONSES ACCEPTED)
1.  to make them clean
  2.  to lessen the chance of disease/better health
  3.  to make them look good/smell good
  4.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR

+ see page 10

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- 503 Would you please show me how you wash your hands? (NOTE THE FOLLOWING ACTIONS AND RECORD. IF THE RESPONDENT DOES NOT DEMONSTRATE WITH WATER, DO NOT FILL IN THIS QUESTION.)
0.  does not want to demonstrate
  1.  uses water only OR
  2.  uses soap and water
  3.  dips hands in the container OR
  4.  pours the water over hands
  5.  rubs hands vigourously OR
  6.  does not rub hands vigourously
  7.  washes between the fingers

---

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600 FOOD HYGIENE

- 601 Where do you store leftover food? (MULTIPLE RESPONSES ACCEPTED)
0.  never have leftover food
  1.  covered container
  2.  open container
  3.  in the house
  4.  give it to the animals
  5.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 602 What should you do with leftover food to make it safe for eating? (MULTIPLE RESPONSES ACCEPTED)
1.  keep it covered
  2.  reheat it
  3.  keep it away from flies
  4.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 603 Why should prepared food be covered when not being eaten? (MULTIPLE RESPONSES ACCEPTED)
1.  keeps flies off
  2.  prevents disease
  3.  keeps food clean
  4.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR
- 604 What do you do with raw fruits and vegetables before eating them? (MULTIPLE RESPONSES ACCEPTED)
0.  nothing
  1.  wash them
  2.  rub them
  3.  peel them
  4.  other (SPECIFY \_\_\_\_\_)
  9.  DK/NR

## 700 RUBBISH

701 Where do you put your rubbish?

- 0.  nowhere
- 1.  in a pit
- 2.  in the bush
- 3.  in a pile
- 4.  in the river bed
- 5.  burn it
- 6.  other (SPECIFY \_\_\_\_\_)
- 9.  DK/NR

## 800 DIARRHOEA

801 In the past 3 days has anyone in this household had diarrhoea?  
By diarrhoea I mean 3 or more watery stools in one day.

- 0.  no (GO TO 804)
- 1.  yes
- 9.  DK/NR (GO TO 804)

802 How many of those with diarrhoea are:

- 1.  less than 6 months old (RECORD NUMBER \_\_\_\_\_)
- 2.  6 months to 5 years of age (RECORD NUMBER \_\_\_\_\_)
- 3.  more than 5 years of age (RECORD NUMBER \_\_\_\_\_)
- 9.  DK/NR

803 What did you give him or her? (MULTIPLE RESPONSES ACCEPTED)

- 0.  nothing
- 1.  more liquid
- 2.  sugar-salt solution
- 3.  thin porridge/cereal based ORS
- 4.  ORS packet
- 5.  medicine from health post
- 6.  traditional medicine
- 7.  other (SPECIFY \_\_\_\_\_)
- 9.  DK/NR

(GO TO 805)

804 If someone has 3 or more watery stools in a day, what should you give him or her? (MULTIPLE RESPONSES ACCEPTED)

- 0.  nothing
- 1.  more liquid
- 2.  sugar-salt solution
- 3.  thin porridge/cereal based ORS
- 4.  ORS packet
- 5.  medicine from health post
- 6.  traditional medicine
- 7.  other (SPECIFY \_\_\_\_\_)
- 9.  DK/NR

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380. Based on your observations, what is the most likely source of contamination?

- 1.   feces
- 2.   household plumbing
- 3.   contaminated water
- 4.   wildlife
- 5.   other animals
- 6.   contaminated food
- 7.   human habitation
- 8.   NONE

385. How is diarrhea transmitted?

- 1.   flies
- 2.   contaminated water
- 3.   contaminated food
- 4.   dirty hands
- 5.   feces
- 6.   other (SPECIFY: \_\_\_\_\_)
- 7.   NONE

90. MAKE OBSERVATIONS

386. Is there animal feces about?

- 1.   no
- 2.   yes
  - a.   a little
  - b.   a lot

387. Are there animal carcasses lying about?

- 1.   no
- 2.   yes
  - a.   a little
  - b.   a lot

388. Are there human feces lying about?

- 1.   no
- 2.   yes
  - a.   a little
  - b.   a lot

389. Are there exposed animals in the yard?

- 1.   no
- 2.   yes

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## 1000 LATRINE OBSERVATION

(IF THE RESPONDENT HAS A PRIVATE LATRINE, ASK THE FOLLOWING QUESTION. IF NOT, END THE INTERVIEW.)

1001 May I please see your latrine?

0.  no (END THE INTERVIEW AND THANK THE RESPONDENT.)  
1.  yes

THE REMAINDER OF THIS QUESTIONNAIRE IS OBSERVATION ONLY. PLEASE FILL IN THIS SECTION WHILE INSPECTING THE LATRINE.

1002 The latrine is located:

1.  in the yard/near the house  
2.  in the neighbor's yard  
3.  far from the house

1003 Is there a cement slab?

0.  no  
1.  yes

1004 Is the slab or floor in good repair?

0.  no  
1.  yes

1005 Is there debris on the floor or slab?

0.  no  
1.  yes

1006 Is there urine or water on the floor or slab?

0.  no  
1.  yes

1007 Are there faeces on the floor or slab?

0.  no  
1.  yes

1008 Is there a lid for the hole?

0.  no  
1.  yes

1009 Is the lid on the hole?

0.  no  
1.  yes

1010 Is the pit full or almost full?

0.  no  
1.  yes

1011 Are the walls and roof strong?

0.  no  
1.  yes

1012 Can you be seen while you're in the latrine?

0.  no  
1.  yes

1013 Are there flies in the latrine?

0.  no  
1.  yes  
    a.  a few  
    b.  many

1014 Is there a water pot for hand-washing within 5 metres of the latrine?

0.  no (GO TO 1017)  
1.  yes

1015 Is there water in the pot?

0.  no  
1.  yes

1016 Is there a dipping cup near or on top of the water pot?

0.  no  
1.  yes

1017 Is there a soak-away for urine and water?

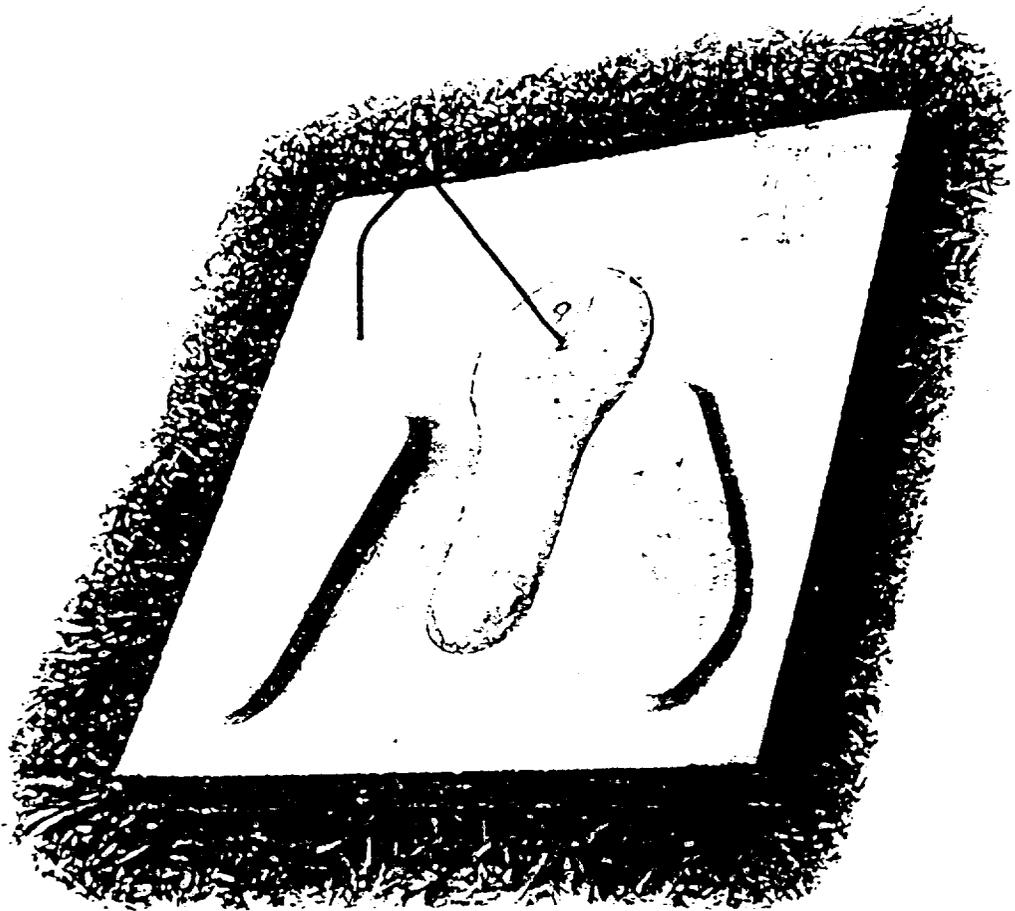
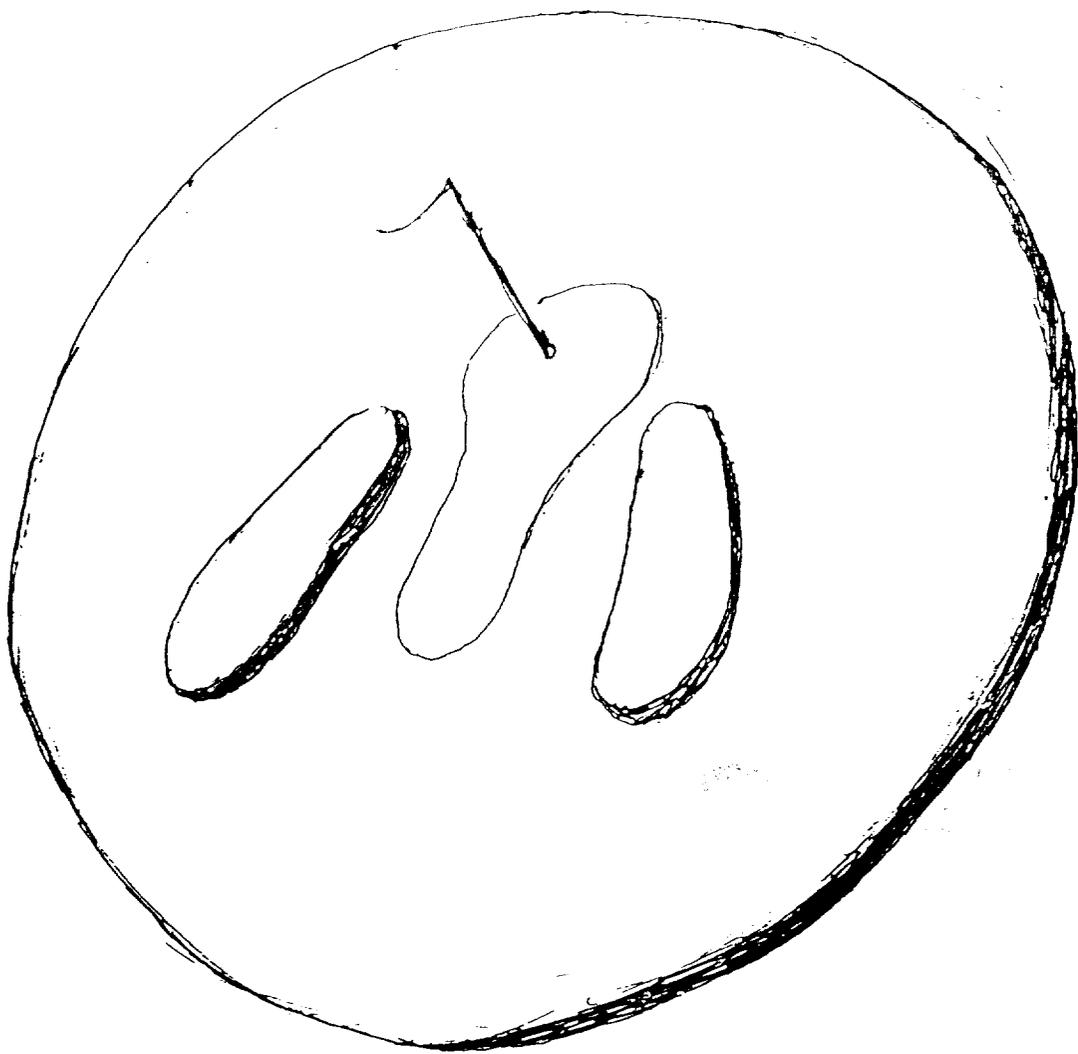
0.  no  
1.  yes

1018 Is the latrine located at least 30 metres from a water point?

0.  no  
1.  yes

THIS CONCLUDES THE INTERVIEW. PLEASE THANK THE RESPONDENT FOR THEIR TIME AND COOPERATION.

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